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P. 7

THE INCORPORATED SOCIETY OF MEDICAL OFFICERS OF HEALTH

SKETCH.

OF THE

MEDICAL HISTORY OF THE NATIVE ARMY OF BOMBAY,

FOR THE

YEAR 1875.

[THE REGIMENTS ARE PLACED AS THEY STOOD IN THE ARMY LIST ON THE 1st JULY 1875.]

Bombay:

PRINTED AT THE GOVERNMENT CENTRAL PRESS.

1876.

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THE INCORPORATED SOCIETY OF MEDICAL OFFICERS OF HEALTH,



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No. $\frac{\text{S. B.}}{174}$.

FROM

THE SURGEON-GENERAL

Indian Medical Department,

TO

THE SECRETARY TO GOVERNMENT,

Military Department.

Bombay, 26th May 1876.

SIR,

I have the honour to forward, for submission to His Excellency the Governor in Council, the Medical History of the Native Army of Bombay for the year 1875.

2. It differs from the history of the preceding year in the omission of separate divisional reports from the Deputy Surgeons-General. The remarks and information furnished by these officers will, however, be embodied to a great extent in my general observations, and will be given partly at the end of each regimental report. I shall now proceed to notice a few of the points which specially affect each division, reserving for the present the more general information.

PRESIDENCY DIVISION AND ADEN.

Years.	Average Strength.	Average Daily Sick.	Admissions.	Deaths.	
1872	...	3,297	144·0	4,731	33
1873	...	3,358	140·2	4,513	28
1874	...	3,343	133·4	3,861	32
1875	...	3,288·5	125·4	3,551	36

3. The average daily strength was 3,288·5, or 54·5 less than that of the preceding year. The average daily sick was 125·4 as compared with 133·4 for 1874, and the admissions were 3,551—a percentage on strength of 107·9. The deaths were 36, or a percentage to treated of 0·9 as compared with a mortality of 32, and a percentage to treated of 0·7 for the year before.

Effect of Climate. 4. The rainy season appears to have been less unfavourable to health than that of 1874.

5. The troops at Aden have been healthier than during the three or four previous years. Surgeon Peters, in medical charge of the 2nd Grenadiers, draws attention, in para. 2 of his report, to the comparatively favourable situation, in a sanitary point of view, of Khor Mucksar, where the Aden Troop is stationed.

POONA DIVISION.

Years.	Average Strength.	Average Daily Sick.	Admissions.	Deaths.	
1872	...	8,577	319·7	10,703	51
1873	..	8,209	250·4	7,334	35
1874	...	8,197	241·2	6,855	36
1875	...	8,145·9	224·2	7,607	40

6. The average strength of the army in this division was 8,145·9, which is slightly less than it was in the previous year. The average daily sick was 224·2, and the admissions were 7,607—a percentage on strength of 93·2 as compared with a percentage of 83·6 for the year before, this increase being attributable to the greater prevalence of malarious fevers and to the cholera epidemic. The deaths amounted to 40, or nearly the same percentage on admissions as in 1874.

7. It was especially at Poona that the increase in the number of fever cases took place, and there can be no doubt that this was due to the continued wet weather which occurred there in August last. In the 1st Regt. L. C., owing to the flooding of the camp and to the insanitary state of the grass-cutters' lines, a very severe type of ague showed itself at this time, and continued to prevail till the end of the wet season.

8. I beg to draw attention to Dr. O'Kearney's remarks on the sources of the drinking water at Asirgarh. I trust that before long energetic measures will be taken to ensure a pure supply to the troops stationed there.

NORTHERN DIVISION.

Years.	Average Strength.	Average Daily Sick.	Admissions.	Deaths.
1872 ...	8,054	427·4	15,735	68
1873 ...	8,450	392·9	13,498	52
1874 ...	8,362	376·2	12,426	53
1875 ...	8,547·1	318·2	10,714	105

9. The average strength was 8,547·1—an excess of 185·1 above that of 1874. The average daily sick was 318·2. The admissions amounted to 10,714—a notable decrease on those of the preceding year, but still a percentage on strength of 125·3. The mortality, although in a much smaller number of admissions, was 105, which is double that of the year before, an increase for which cholera is entirely accountable.

10. A case of typhoid fever occurred in a sepoy of the 16th N. I. at Mhow.

SIND DIVISION.

Years.	Average Strength.	Average Daily Sick	Admissions.	Deaths.
1872 ...	2,975	148·0	5,040	74
1873 ...	2,950	92·7	3,690	50
1874 ...	2,848	84·9	3,459	55
1875 ...	2,837·5	104·9	3,603	32

11. The average daily strength was 2,837·5, nearly the same as in 1874. The average daily sick was 104·9. The admissions have increased, and were 3,603 as compared with 3,459 of the preceding year—a percentage on strength of 127·0. The mortality is, however, much smaller, being only 32 for the year under report, whereas with a less number of sick the deaths were 55 in the year previous.

12. Both Kurrachee and Hyderabad have, in common with Upper Sind, participated in the general insalubrity so marked in this province during the past year. This insalubrity must be due, in great measure, to the exceptional conditions of 1874. Certainly at Jacobabad

the increase in the number of cases of malarious fever may with excellent reason be laid down to the extremely unhealthy conditions resulting from the unusual floods of that year.

13. Dr. Miller again brings forcibly to notice the insalubrity of this station, and remarks on the wretched physical state of the troops quartered there.

Jacobabad.

Epidemics.

14. There has not been a single case of epidemic disease.

15. At Jacobabad 118 cases of Sind boil occurred as compared with 81 for the preceding year. Drs. Miller, Bartholomeusz, and MacRury are of opinion that this disease is merely a visible indication of a peculiar state of constitution found in the residents of Upper Sind; and this, they think, is induced by exposure to the depressing effects of high temperature, in a hypersaturated atmosphere, of persons suffering from malarious cachexia.

Sind Boil.

Water.

16. At Kurrachee an unusual rainfall, in November, of 2·5 inches was of essential service in filling the tanks and wells.

17. From the figures below it will be seen that the total strength of the army was but 69 more than that of last year. The average daily sick, in spite of the increase recorded amongst the Sind troops, was, on nearly the same strength, no less than 144·6 below the average of the preceding three years. The percentage of daily sick to strength shows a corresponding decrease, and the total admissions are less than those of last year by 1,126, or 5,140 under the average of the previous three years. A glance at the table will show that, while the strength has remained almost stationary, there has been a notable and progressive annual diminution in the number of admissions and daily sick. This seems to show satisfactorily that the measures taken to preserve the health of the army have, except in some of those notoriously insalubrious stations, borne year by year more valuable fruit :—

Years.	Average Strength.	Average Daily Sick.	Average Daily Sick per Cent. to Average Strength.	Admissions.	Deaths.
1872	22,903	1,040·0	4·54	36,209	226
1873	22,967	876·2	3·82	29,035	165
1874	22,750	835·7	3·66	26,601	176
1875	22,819	772·7	3·38	25,475	213

18. The total number of deaths, during the year under report, amounted to 279 as compared with 248 for 1874; of these 213 occurred in hospital and 66 out of hospital and on leave, the corresponding numbers for the year before being 176 and 72. In hospital there is an increase of 37 deaths over those of 1874 and of 24 above the average of the preceding three years. This greater mortality, although with a less number of admissions, is almost entirely attributable to the epidemic of cholera which prevailed amongst the troops of the Poona and Northern divisions.

Mortality.

19. I shall now proceed to remark on the statistics connected with the principal diseases from which the army suffered during the past year. Chief of these are malarious fevers. Malarious Fevers. Out of a total strength of 22,819 there were 10,566 of treated for these diseases as compared with 12,733 for the year before with a strength of 69 less. Of these there occurred in the Presidency division 1,280, in the Poona division 2,938, in the Northern division 4,375, and in Sind 1,973—the numbers for the previous year, with nearly the same strength, being 1,940, 2,369, 6,536, and 1,888 respectively. These numbers show an increase for the Poona and Sind divisions, which is more than counterbalanced by the large decrease in the Presidency and Northern divisions. The percentage of malarious fevers to the total diseases treated was, for the Presidency 35·2, for Poona 37·7, for the Northern division 39·7, and for Sind 52·8—the corresponding numbers for the previous year being 47·9, 33·2, 51·4, and 53·3. The high percentage for Sind, and an apparently permanent one too, is sufficiently suggestive. In the Presidency division the 26th N. I. at Surat, the wing of the 7th at Tanna, the 20th at Bombay, and the Aden Troop show the largest proportion of cases; the first-named, with a strength of 614, out of a total treated of 1,264 had 600 including 3 deaths—a percentage to treated of 47·5; the second, 144 in 268; the third, 118 in 655; and the last, 100 out of 192. The detachment of the 21st at Bushire as usual suffered severely. In the Poona division the 1st Grenadiers, the 8th, and 17th N. I., and the 1st L. C., all stationed at Poona, suffered to a considerable extent. There was also a good deal of fever in the 19th N. I. at Sholápur and in the 15th at Málegaon. In the Northern division the cases treated for fever in the detachment of the 28th N. I. at Barda Choki, with a strength of 87, amounted to 77·6 per cent. of the total treated, including 3 deaths. Next in order comes the detachment of the 10th at Augur—63·7 per cent. to treated. It must, however, be borne in mind that this detachment is relieved from Mehidpur. In the 24th at Neemuch and the 10th at Mehidpur the percentages were 55·5 and 54·1 respectively, and for the 28th N. I. at Rájkot and the 22nd and 9th at Baroda the figures were 41·2, 34·8, and 35·6. In all these stations, however, fever has been much less prevalent than in 1874. In Sind the 27th N. I. at Hyderabad, the 30th at Jacobabad, and the 3rd Sind Horse at the same station have suffered from malarious fevers to a far greater extent than in the previous year: with a total strength, for the three regiments, of only 73 more for the year under report, the fever cases for each, for 1874 and 1875, were 115 and 275, 258 and 437, and 299 and 441 respectively. On the other hand, however, the 29th N. I. at Kurrachee and the 1st and 2nd Sind Horse at Jacobabad have suffered somewhat less, but still to a most undesirable extent as compared with regiments in the other divisions. Further on I shall make some additional observations regarding the malarious climates of Upper Sind, Barda Choki, and Mehidpur.

20. During the year there were 150 cases of eruptive fevers treated, with 1 death; the prevailing forms were measles and chicken-pox. Eruptive Fevers. In the Presidency division there were 8 cases of measles and 2 of chicken-pox amongst the troops stationed in Bombay, and 2 of the former with 4 of the latter in the 26th N. I. at Surat. 3 cases of small-pox occurred in the 20th N. I. In the Poona division there were 23 cases of measles as compared with 6 for the year before; there were also 43 of chicken-pox and 3 of small-pox: the first prevailed most in the Poona garrison and the second in the 4th Rifles at Satara and in the 5th and 6th N. I. at Belgaum; in the latter regiment there were also 2 cases of small-pox. In the Northern division 50 cases of measles are recorded, of which 17 with 1 death occurred in the 3rd N. I. at Ahmedabad; there were 9 cases in the 9th N. I. at Baroda, and 11 in the 24th at Neemuch. In 1874 there was but 1 case of this disease in the whole division. There were only 7 cases of chicken-pox as compared with 44 for the preceding year; 4 of these occurred in the 25th N. I. at Mhow and Indore, 2 cases of small-pox were treated in the 18th at Deesa and 1 of

scarlet fever in the 16th at Mhow. As was also the case last year, Sind has remained entirely free from any species of eruptive fever. With regard to measles the spread of the disease has been very marked, the number of cases having increased from 22 in 1874 to 83 for the year under report. In the Presidency division the disease has remained stationary, being almost entirely confined to Bombay; but in the Poona and Northern divisions, taken together, it has increased from 7 to 73 cases. None of the medical officers in these divisions attempt to account for the increase, or trace the sources from which the disease has emanated.

21. The army stationed in the Presidency and Sind divisions remained wholly untouched by the cholera epidemic which raged throughout the country during the year 1875. In the Poona Division there were 22 cases and 15 deaths. 3, all fatal, occurred in the Sappers and Miners at Kirkee; 4, with 3 deaths, in the 6th N. I. at Belgaum; and 3 fatal cases in the 12th at Dharwar; 3, all of whom recovered, in the detachment of the Poona Horse at Dhulia; and 2 each in the 8th and 13th N. I. at Poona and Ahmednagar. In the Northern division there were 98 cases and 56 deaths; the 10th N. I. at Mehidpur suffered most severely, having 43 admissions with 24 deaths; the 22nd at Baroda had 14 cases and 7 deaths; the 9th, at the same station, 12, and 8 deaths; and the 16th, at Mhow, 7 admissions, of which 4 were fatal: the 25th, also, at Mhow and the 24th at Neemuch had each 2 cases. In the course of my further remarks I shall again allude to various points connected with this epidemic.

22. The treated for rheumatic affections show an increase on the total for the previous year; then there were 1,474 with 4 deaths, but in 1875 they amounted to 1,588 with the same number of deaths. The increase has occurred in the Poona and Sind divisions; in the first the advance is from 487 to 595, and in the second from 82 to 115, the strengths remaining as before. In the Presidency and Northern divisions the figures continue much the same—a few less in each case. The percentage of treated to strength for the Presidency, Poona, Northern, and Sind divisions was 6.1, 7.3, 7.8, and 4.0 respectively, while that for Poona and Sind for 1874 was 5.9 and 2.9 respectively. The 16th N. I. at Mhow and the 18th at Deesa suffered from this class of diseases in a greater proportion than regiments in other stations, the same being the case in the preceding year. Here and elsewhere many of the cases entered as rheumatism may, doubtless, be laid to the door of malaria, syphilis, or scurvy, while others may with good reason be put down as cases of simulated rheumatism, the disease in its chronic form being the one most commonly resorted to by malingering sepoys. In para. 63 of my report for 1874 I alluded to this subject.

23. During the past year all the divisions show an increase in the number of treated for syphilis. In the Presidency division the figures are, for 1874 and 1875 respectively, 76 and 92, for Poona 206 and 213, the Northern division 148 and 155, and for Sind 66 and 81, the totals for both years being 496 and 541; the percentage of treated to strength for the latter year was for each division 2.7, 2.6, 1.8, and 2.8 respectively. As may easily be supposed, the regiments stationed in or near large towns show the highest proportion of cases—the 21st N. I. at Bombay showing, for example, 4.1 per cent. of treated to strength. The regiments at Poona and some of the Deccan cities also show a considerable proportion of cases as compared with those stationed in the Northern division, where, as a rule, the admissions are infrequent. The cases treated in Poona and Kirkee have slightly increased in number: these in 1874 were, for all the Native troops at those stations, 102, while for the past year they were 106. In Sind the 27th N. I. at Hyderabad, where no lock-hospital exists, shows 5.6 per cent. of treated to strength; in the preceding year the regiment was stationed at Kurrachee, where a lock-hospital does exist, and then the percentage on the same strength was 3.3.

24. The total treated for scorbutic affections show a decrease of 30 on those for the preceding year, the numbers being 198 and 228, and it is in the Presidency and Poona divisions that this decrease has taken place. On the other hand, however, the 2nd Grenadiers at Aden show, as might be expected, a slight increase in the number of cases from 28 in 1874 to 32 in the past year—nearly one-half of the treated for the whole division, and the 20th N. I. at Bombay shows an advance from 19 to 25. The Northern and Sind divisions show an increase in the latter from 10 in 1874 to 18 in the year under report. Further on I shall take an opportunity of again alluding to the circumstances connected with this disease.

25. The total treated for diseases of the lungs, during the past year, have been 1,491 with 43 deaths, the corresponding figures for 1874 being 1,437 and 54. The percentage of mortality to treated was, for the latter year, 3·6 and for the past year 2·8. The increase in the number of treated occurred in the Presidency division, where they rose from 182 and 6 deaths in the preceding year to 320 with 9 deaths in that under report. The regiments which chiefly contributed to this increase were the 20th and 21st N. I. at Bombay and the 26th at Surat, the treated for these regiments during the years 1874-75 having been, respectively, 39 and 66, 25 and 29, and 40 and 120. For the Presidency division the percentage of treated to strength for the two years was 5·4 and 9·7 respectively. There were 16 cases of pneumonia in the 26th N. I., of which 6 proved fatal, while most of the remaining admissions were due to bronchitis, which occasionally assumed a severe form. Special climatic influences are generally given as the cause of the increased percentage of lung diseases amongst the troops of the Presidency division. For each of the other three divisions the treated are less than in 1874; the percentage to strength for the Poona division was 5·4, for the Northern division 6·8, and for Sind 5·0. In the latter division the mortality, chiefly from pneumonia, was 10·5 per cent. to treated; while for the Presidency, Poona, and Northern divisions it was only 2·8, 1·3, and 2·2 respectively. In 1874 the mortality in Sind was still greater, no less than 13·2 per cent. to the total cases of lung disease treated. The sickness, mortality, and invaliding from phthisis, for the whole army, continues much about the same as in other years.

26. Bowel diseases have been more frequent than in 1874: for diarrhoea the treated have amounted to 706 with 7 deaths, and for dysentery to 635 and 2 deaths, the figures for the year before having been 532 and 5 deaths and 525 and 8 deaths respectively. These show that, although the number of cases have risen considerably, there has been a large decrease in the percentage of mortality. In Sind, for example, there were no deaths, while in the preceding year there were, in spite of a less number of cases, 3 deaths from each disease. In the Presidency division the percentage of treated to strength was, for diarrhoea 4·5 and for dysentery 3·3. The 20th N. I. at Bombay showed the highest percentage for diarrhoea—9·3, and the 2nd Grenadiers at Aden for dysentery—5·4. In the Poona division the percentage of treated to strength for diarrhoea was 1·5 and for dysentery 2·4. For the Northern division the respective figures were 4·1 and 3·1. The squadron of the 2nd L. C. at Rajkot and the 9th N. I. at Baroda suffered from dysentery to a greater extent than did any of the other regiments in the division; for the first the percentage of treated to strength was 12·3 and for the second 5·3. In Sind the cases treated for diarrhoea have risen from 65 in 1874 to 82 in the year under report, while those treated for dysentery have fallen from 67 to 61, the percentage of treated to strength for each disease being 2·8 and 2·1 respectively. The cholera epidemic which prevailed throughout the country has, no doubt, exercised a certain amount of influence towards increasing the number of admissions from diarrhoea, it being a well-established fact that whenever cholera prevails, ordinary diarrhoea becomes more frequent.

27. There was 217 cases of guinea-worm treated during the past as compared with 299 for the preceding year. In the Presidency division they have fallen from 29 to 14, a few cases occurring at Bombay and Surat. In the Poona division they have diminished from 186 to 130. The affection still prevails at Dharwar to a much greater extent than at any of the other stations of the Presidency. In the 12th N. I., which is quartered there, 64 cases are recorded in a strength of 685; this, however, is small when compared with 142 in the year 1874. This great frequency of guinea-worm at Dharwar shows how impure must be the water-supply of the troops. In Poona, Sirur, and Belgaum the cases have increased to a small extent. The percentage of treated to strength for the whole division is 1·5, which is double that for any of the other three divisions, and this higher percentage for the Poona Army corresponds with what has been recorded of the civil population of the Deccan. None of the regiments of the Northern or Sind divisions have been affected to more than a very trifling degree, the percentage of treated to strength for the former being 0·8 and that for Sind only 0·17.

28. The cases treated for injuries of all kinds reached a total for the year of 3,073 as compared with 2,721 for 1874. This increase is almost entirely due to the greater number of reliefs and movements which were carried out; the consequent marching in unsuitable, badly-fitting boots causing the admissions for shoe-bite to become much more frequent. In the 26th N. I., for example, which marched from Bombay to Poona, there were 146 treated for injury as compared with 89 for the preceding year, and the excess is put down to the cases of shoe-bite which occurred during the march. The 8th N. I. at Poona was engaged for part of the year in line-building, and had a large number of admissions from contusions, caused principally through the unskilful handling of the tools used at the work. It is hardly necessary to say that this large number of admissions for slight injury, although it raises the percentage of sickness for the whole army, does not in any way affect the general health of the troops.

29. The general health of the army appears to be fair, and the physique much as usual, though in some regiments it is stated to be below par. The troops of the Sind Frontier Force, those at Mehidpur, and the wing of the 7th N. I. at Tanna are noticed as being less healthy than is desirable. In the case of Jacobabad and Mehidpur the climate is probably the chief factor. In the former the general health is nearly always unsatisfactory; then the Deccani recruit suffers much from intermittent fever during his early service; but, judging from the figures of treated in the force, it is seen that there is a great difference between the numbers admitted in the 2nd and 3rd Regiments, which indicates something special as the cause of this unhealthiness. The men of the 1st Grenadiers, Dr. Sylvester thinks, still suffer from the effects of their residence in Guzerat and Aden. Contrary to the usual state of health of Native troops at Aden, the Sappers and Miners have enjoyed remarkably good health, possibly due to their being "picked men". The cantonments of Jacobabad and Mehidpur are probably incapable of being rendered healthy by sanitary improvements under existing circumstances. The climates of Barda Choki and Dwârka are said to be very injurious, the former giving rise to malarious fevers to such an extent as to cause permanent injury to the health of those who suffer, while that of the latter induces chest-affections and rheumatism. Deputy Surgeon-General Wyllie recommends that the station of Barda Choki be abandoned.

30. The movements of corps are carefully detailed by the regimental medical officers. The movements were the usual reliefs, and the marching of the troops on Bombay detailed for duty during the visit of H. R. H. the Prince of Wales, and to the

Camp of Exercise at Poona. In addition to these the 1st Sind Horse and the 27th Belooch Regiment were out marching during the cold season; this resulted in benefit to the health of the men. Dr. Day, of the 5th Regiment N. I., brings to notice the objectionable camping ground at Karad, it being an old burial-ground with a foul tank near it.

31. In illustration of the remarks in para. 39 of my report for 1874 I notice the improvement in health of the men of the 5th and 14th Regiments at the salubrious stations of Belgaum and Kolhápur. The effects of the climate of Jacobabad is probably best indicated by the number who break down and are invalided at an early period of life. Surgeon Bartholomeusz suggests that, were a forest planted around this camp, the great heat would be mitigated, and the station rendered less malarious. The climates of Aden and Jacobabad are both characterized by great heat, which exhausts the nervous energy, predisposing in the former to malarious diseases and in the latter to scurvy; the first almost altogether irremediable, but the latter, I consider, entirely within the power of prevention. This subject will be mentioned again under the head of scurvy. The climate of the various stations in relation to disease is carefully noted by medical officers, as will be seen in their reports.

32. Many of the waters have been analysed, and some improvements made. The supply generally is reported good and abundant. Rájkot is, however, a notable exception to this. In the Northern Division many observations have been carefully made on the level of the sub-soil water which are given in the various regimental reports, but no generalization as to its influence on health has been arrived at. Dr. McDowall states that in Neemuch the theory of Pettenkoffer is not borne out, for cholera was worst when the sub-soil water was highest. On the other hand, Dr. Kiernander notices the coincidence of a sudden fall in the level of the sub-soil water with the prevalence of cholera in and about Mhow. Dr. Bartholomeusz suggests that the wells and tanks in Jacobabad be cleared out once a year, and that out-posts be supplied with filters. A scarcity of water is expected in Rájkot and Bhuj owing to deficient rainfall.

33. The rainfall has not had any prejudicial effect on the health of the men. At Mhow it was feared that water might be scarce, but a large fall in September banished this. The supply of water at Rájkot does not appear to be in a satisfactory state, and it is anticipated that the sowars will have to be marched out to water in the hot season.

34. Food is reported to be generally cheap and good, but good vegetables are frequently mentioned as scarce, the want being mostly felt in Aden and Central India; for the former station I suggested in my last report that potatoes should be issued to the troops. I am glad to bring to the notice of Government that Colonel Pierce, Commanding the Wing of H. M.'s 10th N. L. I. at Augur, has established a regimental garden, well stocked with vegetables of all kinds, which are distributed to the men at the small charge of 6 pies each per mensem. The 12th Regiment N. I. has also started a garden. I may be permitted to express a hope that this good movement will be favourably noticed by Government, and that the example will be followed by other regiments. In connection with the diet of the sepoy, I would ask attention to the remarks made by various medical officers regarding the custom of deducting a considerable portion of the pay of the recruit for his kit in the first year of his service, thus obliging him either to incur debt or underfeed himself at a time when it is most important he should be well fed. The consequence of this is, that men of inferior physique are habitually sick during their early service, and perhaps lay the foundation of after illnesses, the result of which is a large invaliding and pensioning of men at a comparatively early age.

Line-building appears in some cases to tell on the condition of the men, the ordinary diet being inadequate to meet the waste caused by this unusual labour; and I agree, in opinion, with the medical officers who have recommended that working-pay should be granted to the men so engaged.

35. The lines everywhere are kept clean, but where the drainage is only surface it is hardly possible to prevent the soil from becoming impregnated with impurities. New lines are to be built in Baroda for the 22nd Regiment N. I. The ventilation in the 2nd and 3rd Regiments Sind Horse lines is said to be defective. Many improvements have been effected in the lines of the 20th N. I. at Bombay. The conservancy and sanitary arrangements, as carried out by cantonment committees, are generally satisfactory, but in Mhow Surgeon Heffernan notes a case of cholera having been caused by the proximity to an officer's quarters of the trench latrines of the grass-cutters of the 3rd (K. O.) Hussars. It is also stated that the space allotted for the trench latrines of the 25th Regiment N. I. is too limited. In Mehidpur the trench-latrine ground of the previous year was utilized for the cultivation of native vegetables—a commendable proceeding which cannot be too frequently followed. Some of the trench latrines have been improved. Cantonment committees cannot be too careful to guard against pollution of drinking water from trench-latrines or any other source of impurity whatever. In the previous report I recommended the use of Macnamara's filters. The field latrines of the Sappers and Miners in their new camp at Kirkee are very unsatisfactory in the rainy season, and the place drains itself into the river above where the men at present draw their drinking water; but Kharakwāsla water is expected to be laid on soon. The latrines in Tanna are also in an objectionable condition, which the medical officer reports might be improved by laying down a flushing-pipe leading into the creek. Those in Baroda are unsatisfactory owing to the limited extent of ground and their proximity to the hospital of the 22nd Regiment N. I. One well is only 100 yards distant from the latrines. Dr. Miller again draws attention to the very unsatisfactory latrine system of the 1st and 2nd Regiments of Sind Horse at Jacobabad.

36. The duties have not been severe, and, as far as is known, have not injured the general health. The medical officer of the 8th N. I. attributes the decided falling off in the general health and efficiency of the sepoys of this regiment to the hard work and exposure entailed by the building of their new lines; but Deputy Surgeon-General Maitland, pointing out that the general health of sepoys of other corps similarly employed remained good, attributes this failure in health to climatic causes. As a matter of fact a large number of the admissions were due to trifling contusions. The duties of the 3rd Regiment N. I. at Ahmedabad were heavy after the departure of the 9th Regiment N. I. for Baroda, and Dr. Johnson attributes to this cause the very large increase in the admissions.

37. Several medical officers recommend a course of exercise in the gymnasium as likely to conduce to the physical development of the men, especially recruits. In this I entirely concur, and am of opinion that it should take the place of one of the ordinary drill parades. I mentioned this subject in para. 52 of my last report.

38. The hospitals and their surroundings are well reported of generally, and improvements are gradually taking place, and deficiencies being supplied where necessary.

39. Vaccination is thoroughly carried out, and only infants of tender age remain unprotected. There were no deaths from small-pox. Though this disease was epidemic in the first 4

months of the year in Cutch, yet only 2 mild cases occurred in the lines of the 11th Regiment N. I. at Bhuj. Nothing could testify in a higher degree to the care and attention of regimental medical officers in the matter of vaccination than the almost total absence of small-pox.

40. The number of invalided was 972, which gives 4·26 per cent. on a strength of 22,819. In last year's report I mentioned Invaliding. in para. 63 the progressive annual increase in the number of invalids, and noted that a large proportion were men under 20 years' service. In the year under report the percentage of invaliding to strength is somewhat less than in either of the two preceding years; but my remarks, however, regarding ages and causes of invaliding hold good equally for the present year.

41. There was a severe epidemic of cholera, which arose in Násik in March, and gradually spread over all the districts of this Presidency except Sind. The civil population of some parts suffered severely. It is remarkable that the Native troops suffered singularly little from the epidemic, notwithstanding many regiments were stationed in what must be viewed as "infected localities"; and some regiments, although surrounded by civil populations struck by cholera, entirely escaped, as, for instance, the Native troops in Rájkot, Indore, Sholápur, Ahmednagar, Asirgarh, Satara, and Kolhápur. It would appear that the precautions taken in these stations are believed by medical officers to have kept the disease from the lines. I am disposed to agree with them, and I cannot speak too highly of the efforts of all the regimental medical officers to prevent the disease reaching the lines, to check it by careful treatment, and to thoroughly cleanse every place and article which had any connection with cholera. But, while I cheerfully accord every credit to such deserving efforts, yet I must also record that similar efforts failed to keep the disease out of the lines of the Native troops in the stations of Mehidpur, Ahmedabad, Mhow, Poona, Málegaon, Neemuch, and Baroda; still even in these places the disease was kept in check, and only in H. M.'s 10th and 3rd Regiments N. L. I. at Mehidpur and Ahmedabad did the deaths reach any considerable number—24 in the former and 11 in the latter. A wing of H. M.'s 9th Regiment N. I. marched out of Baroda Cantonment, and H. M.'s 22nd from Baroda City, and remained under canvas until the disease disappeared. In all the regiments in which cholera broke out the medical officers took every precaution to prevent its spread, and the huts in which cases occurred were fumigated, whitewashed, &c. &c. The cases were treated in separate accommodation. The medical officer of the Poona Horse, Dr. Gordon, gives, at page 38, an interesting account of the progress of the disease to Sirur. Surgeon-Major Day, H. M.'s 5th Regiment N. L. I. at Belgaum, is of opinion that round worms in some cases produced symptoms simulating cholera, and he states that enormous quantities of these parasites were passed.

42. Scurvy in H. M.'s 12th Regiment was cured by attention to vegetable diet. This disease makes its appearance in every Scurvy. Native regiment serving in Aden, and continues for some time after the men return to India. The siege of Paris conclusively proved this disease to be entirely due to want of fresh vegetables, and it may now be affirmed that only a ration of these can prevent scurvy in Aden. Limejuice, though better than nothing, is far behind potatoes and green vegetables as a preventive and a curative agent. I am of opinion that an effort, even if a costly one, should be made to supply the troops with these: it would be a saving in the end to Government, as the men would be less sick, and there would be fewer invalided at an early age.

43. Dr. Wyllie commends Dr. McDougall's report, and Dr. Maitland
 Commendations. that of Dr. Sexton. The reports, in general, have
 been prepared with care, and show that the medical
 officers perform their duties with efficiency and zeal. They have given much time
 and consideration to sanitary matters, both as regards their regiments and the
 circumstances of the localities in which they are stationed. The Deputy Surgeons-
 General of divisions are almost unanimous in their expressions of satisfaction with
 the work of the medical officers, and it affords me much pleasure in unreservedly
 endorsing the same. I conclude by bringing to the notice of Government my
 entire satisfaction with the manner in which the Deputy Surgeons-General them-
 selves have conducted their duties. In the case of three of these officers their
 tenure of office will shortly expire; and I cannot allow them to depart from India
 without placing on record my opinion that, during the time I have been Surgeon-
 General, they have zealously performed their duty to the State, and not this alone,
 but throughout the whole of their service they have never failed to prove them-
 selves good and efficient officers.

I have the honour to be,

Sir,

Your most obedient Servant,

W. THOM,

Surgeon-General.

A SKETCH

OF THE

MEDICAL HISTORY OF THE NATIVE ARMY OF BOMBAY

FOR THE

YEAR 1875

[The regiments are placed as they stood in the Army List on the 1st July 1875]

PRESIDENCY DIVISION, ADEN, AND BOMBAY MARINE.

Average strength present during the year, Infantry.....	3,288·5
Average daily sick per cent. to the average strength	3·8
Ratio of mortality per cent. to the average strength	1·1

Detachment, 4th Regiment N. I. (Rifles).

BOMBAY.—In medical charge of Surgeon H. DETATHAM; Strength, 141·5.

- | | |
|-------------------------------------|---|
| Location and Movement. | 1. The same detachment of the 4th Rifles has been doing duty in Bombay since 1873. |
| Lines, and Accommodation generally. | 2. The men have continued to occupy the pendall which was described in my last report; the accommodation provided, has been found good and sufficient. I inspected the lines myself during the rains, and found them to be dry and wholesome: no changes or additions have been made to any of the buildings occupied by the detachment during the past year. As already reported, there is no roof-ventilation in the pendall; but this is of little consequence, as the doors, being 7 feet high, admit of the air of the rooms being changed frequently. |
| | 3. There is no separate hospital for the detachment, the sick being treated in the hospital of the 20th Regiment N. I.; and there are no cells, prisoners (when there are any) being confined in the quarter-guard. |
| Drainage. | 4. The situation of the pendall is such that the ground round it drains naturally; no lodgment of water occurred during the rains. The conservancy of the pendall and adjacent ground has been well maintained throughout the year. |
| Conservancy. | There is no latrine for the men of the detachment; some of them use the latrine of the 20th Regiment N. I., and others the Sonapur latrine. There is one small latrine in the immediate neighbourhood of the pendall, which is reserved for the women; it is carefully looked after, and has been kept in as good a sanitary state as its construction will admit of. |
| Water-supply. | 5. This is from the Vihar Lake, and has been good throughout the year. On a few occasions, however, the supply has been suspended for a few hours only. |
| Duties and their Effect on Health. | 6. The duties performed by the detachment cannot be said to have had any appreciable effect in producing sickness, although, of course, men sometimes apply for admission who would not do so if they had no duty to perform. The men have enjoyed, on an average, $3\frac{1}{2}$ consecutive nights in bed. |

7. The average daily number of sick during the year was 6·3, and the total number of admissions was 133, which latter were furnished by 74 men in the following proportion :—44 men admitted once, 18 twice, 6 thrice, 1 four times, 3 five times, 1 seven times, and 1 nine times.

Number of first admissions...	...	...	...	74
Number of re-admissions {	for the same disease ...	19	}	59
	for a different disease ...	40		
Total...				133

The health of the detachment has been fairly good throughout the year, although the number of men treated and the number of admissions into hospital have slightly exceeded those of the year 1874. Of the 133 admissions, 21 were due to malarial fever, 2 of them being remittent in type; they all recovered. 20 admissions were caused by diarrhœa and other bowel affections, all of which proved easily amenable to treatment. 9 men were admitted for chronic rheumatism; in one of these the disease was complicated with scurvy, and the man died while in hospital from sudden syncope. Syphilis has furnished 6 admissions (2 primary and 4 secondary); one of these, when convalescent, was sent on leave to his country and died there, the immediate cause of death being unknown. 2 men suffered from *phthisis*: one died in hospital, and the other has proceeded on sick leave to his country. Bronchitis and pneumonia gave 16 admissions; they all recovered. One man was admitted no less than nine times during the year for various ailments; it is satisfactory to be able to state that he has been invalided. A sepoy who suffered from melancholia was transferred to the Colaba Lunatic Asylum. No cases either of cholera or small-pox were admitted during the year.

8. 4 men were sent on medical certificate to their own country during the year, their diseases being as follows :—1 laryngeal catarrh—rejoined, and died in hospital from *phthisis*; 1 chronic rheumatism, 1 syphilitic cachexia; 1 *phthisis*. 12 men above 15 years' service were sent before the General Invaliding Committee and obtained their pensions; their disabilities were as follows :—9 old age, debility, chronic bronchitis, and emphysema; 1 asthma; 1 chronic syphilitic ulceration of leg; and 1 varicose veins.

9. 2 deaths occurred in hospital—1 from *phthisis*, and 1 from sudden syncope in a patient under treatment for rheumatism and scurvy combined.

Vaccination and Re-vaccination.

10. These have been regularly practised; the results are shown in the following table :—

VACCINATION.				RE-VACCINATION.		
Number of Primary Operations.	Successful.	Unsuccessful.	Number of Persons operated on.	Number of Persons operated on.	Successful.	Unsuccessful.
22	20	2	21	7	6	1

Right Wing of H. M.'s 7th Regiment N. I.

TANNA.—In medical charge of Surgeon-Major BOUSTEAD; Strength, 301.

1. This wing of the 7th Regiment has been stationed here during the past three years, there have been no changes or movements of the detachment since its arrival.

2. The general health of the detachment may be considered fair, since Tanna is considered a bad and enfeebling station, situate as it is in a basin or hollow surrounded by hills that are covered with jungle, and with swamp and rice-fields all around. The effects of the climate of Tanna on the men cannot be otherwise than enervating and injurious, having an average rainfall of 120 inches; and it would, I think, be better to relieve the wing every two years instead of retaining the same detachment at Tanna four successive years, as has been done on this occasion.

3. The lines are divided into two portions : the northern section was newly built last year, and is in excellent order ; the southern section is now being pulled down, and new lines are to be built by the P. W. D., on the standard plan, before the ensuing rains ; they will then be excellent, well ventilated, and roomy. There is no drainage, all refuse water being thrown out, or allowed to flow over the ground in front through small channels from the interior of the huts ; there is a long masonry channel which conveys the water from the washing well to the creek running north to south. The lines are bounded on the east by the creek, on the north by the encamping ground and jail, on the south by the fishing village of Kolliwarra, and on the west by the house of the civil residents, the Judge's Court, and the hospitals and bazaar. The cells are in the quarter-guard, and are very roomy, and the ventilation is ample and abundant. The latrines of the detachment are situate on the bank of the creek to the extreme east of the station, and are very faulty. The ordure is carted away daily to a distance in iron receptacles, and the seats are then flushed with water. The water, or liquid ordure, flows all over the place and down the bank into the creek, creating a most offensive stench all around the neighbourhood, and rendering the latrines so intensely objectionable as to deter the people from using them whenever they can avoid it ; liquid ordure may be seen oozing through the sides of the walls of the latrine daily. I am of opinion that no system is so peculiarly well adapted to Tanna as the dry-earth system, and it should be introduced without delay. If, however, it be determined to keep up the present objectionable system, I would suggest that a 6-inch diameter tube be fitted to each latrine, to extend down into the deep water of the creek, through which all the flushing water should flow—the ordure being removed, as at present, in closed pans. This, however, is not an advisable plan.

Duties, &c.

4. The duties have been light. The occupation of the men beyond these duties is left to their individual dispositions : some attend school, others amuse themselves with gymnastics, &c.

5. The quarter-guard, which is also the cell, is in excellent repair and very commodious and well ventilated.

6. The hospital is a poor building, but it generally suffices (occasionally with a little crowding) to contain all the sick. It is too closely surrounded and hemmed in by buildings and dwellings for health and proper sanitation. Ventilation perfect. There has been no overcrowding. There is no accommodation whatever for 2nd class servants, nor is there a separate contagious-diseases ward. The conservancy of the hospital is on the dry-earth system and answers very well, is clean and free from smell. The water for hospital use is brought from a good well in the police lines, and is fair average drinking water.

7. There have been 186 admissions and 81 re-admissions. The principal diseases were fevers of malarious origin, ague being the chief, of which 95 were admitted and 48 re-admitted, as against 204 last year, being 61 less. The number admitted from all diseases once was 154, twice 29, thrice 18, four times 4, and five times 1.

8. The causes of the principal diseases have been climatic.

9. There have been 5 deaths during the year : 1 phthisis, 1 diarrhœa, 1 pneumonia, 1 bronchitis, and 1 debility,—all Hindus.

10. 37 were vaccinated and 5 re-vaccinated during the year.

11. The general health and physique of the men is of a low average.

12. A *resumé* of the whole would show that the average sick has been less than the previous year ; there have been no epidemics, the five casualties occurred in Hindus, and were from diseases to which all Natives are subject ; that quarters for 2nd class servants are very much required, as is also a contagious-diseases ward ; that the regimental latrines are on a bad principle, and that dry-earth should be introduced. The physique of the men is not high, and a wing should be relieved at least every two years.

H. M.'s 20th Regiment N. I.

BOMBAY.—In medical charge of Surgeon H. DETATHAM ; Average Strength, 621·7.

1. The regiment has been stationed in Bombay throughout the year. A small detachment of 16 men has been furnished to Jinjira ; this has been relieved twice. I examined both detachments on their return ; they appeared to be in excellent health, and were in much better condition than their harder-worked comrades who had remained in Bombay.

Location and Movement of Corps.

Detachments.

2. Under this head I have but few remarks to offer. 76·28 inches of rain were registered, being $7\frac{1}{2}$ inches less than in the previous year; and I think the rainy season of 1875 was, speaking generally, more favourable to health than that of 1874.

Climate.

3. Having in my last report fully described the lines at Boree Buuder, it is not necessary to do so again; a few remarks, however, I may be permitted to offer. In the first place, the ground of the line enclosure remains in the same rocky and uneven condition as formerly mentioned, and urgently requires levelling; even in the day time walking through the lines is difficult and not devoid of risk, while on a dark night I should say that a severe sprain or contusion would be almost inevitable. At the beginning of the monsoon I wrote in, recommending that water-proof sheets should be issued to the men; but, as the Commissariat authorities had not sufficient in store in Bombay, it could not be done. I am glad, however, to be able to state that the men's huts were not nearly so damp during the year as in 1874; this was, no doubt, due to the fact that the rainfall was more equally distributed over the rainy months than in 1874. The P. W. D. has been engaged during the year in re-building the lines; a great many of the pendalls have been pulled down and re-constructed, and I believe the work will have been entirely completed by the end of February 1876. The newly-constructed pendalls have been built upon the same ground on which the old ones stood, and therefore contain the same amount of superficial space; but they are much superior to the old ones in some respects, being for the most part raised on plinths, and having doors of 6 feet high, which facilitate ventilation. It is, I think, however, a matter

Ventilation and Drainage.

for regret that, in spite of previous reports upon the subject, the new pendalls have been constructed without any roof-ventilation, and without permanent bathing places. I believe a central drain is to be made down each street in the lines; but the drainage of individual houses can be perfect only when stone-and-lime bathing places, and tributary drains leading into the central drain, exist for each house throughout the lines.

4. No change has been made in the quarter-guard. The floor, being on the same level as the ground outside, and not being covered with lime, was very damp during the rains.

Quarter-guard.

5. With regard to the school, I have nothing to add to my former remarks upon the subject, except that the experience of the past year has served only to prove still further the utter unsuitability of the building to the purpose for which it is intended.

School.

6. The conservancy of the lines has been as well maintained during the year as the above-mentioned defects in the drainage admit of. The latrine has been kept in an excellent sanitary condition, being flushed with water several times daily.

Conservancy and Sanitary Arrangements.

7. Occasionally the supply of water has been suspended for a few hours, but with this exception it has been good and ample. I would, however, beg to repeat my suggestions of last year, especially with respect to a trough to catch the drippings from the tanks; the want of this keeps the ground in front of the tanks in a muddy and objectionable condition. The prices of food in Bombay have remained much the same since last report, except during the month of November, when, in consequence of the influx of visitors, there was a temporary rise in the market rates. As usual in a Native regiment, a large number of men seen at hospital have had their ailments aggravated, if not in many cases induced, by insufficient diet; this is perhaps more noticeable in Bombay than in up-country stations, as, the duty being harder, a weakly man has recourse to the sick list sooner than he would up-country.

Water and Food.

8. I cannot, however, say that any of the sickness in the regiment could fairly be traced to the duties performed, except perhaps a few cases of febricula and ague of an irregular type among the several companies on their return from Bandora, where they had gone through their annual course of ball practice. The average number of consecutive nights in bed has been 4.

Duties and their Effect on Health.

9. In the month of July the ground of the two lock-up rooms at the back of the quarter-guard, then occupied by two prisoners, was very damp, and the rooms were, in my opinion, unfit for human habitation during the rainy season. I recommended the selection of some more suitable building for the confinement of prisoners at that time. I was informed, however, that no other place was available; but, in order to diminish the risk to the men's health, cots were supplied, thus avoiding the necessity of sleeping on the ground. It is satisfactory to be able to record that the health of the men in question did not suffer.

Lock-up Rooms and Cells.

10. The hospital was fully described in my last report; it has been kept in good order, and the accommodation has not at any time proved inadequate. There are no wards for infectious diseases, and the bath-room sanctioned by Government has not yet been constructed. I would recommend a tap being placed in the hospital compound; a new latrine, a dead-house, and a bath-room are required. I again venture to suggest, as a desideratum, the brick oven recommended in my last report: during the past year I have had as many as 6 cases of scabies under treatment at the same time, and re-admissions for the disease have frequently occurred. It is very difficult to properly cleanse foul cloth clothing, such as uniforms, &c.; they cannot be washed, and mere exposure to sun-light and air can never be so certain or effectual as subjecting them to a high temperature would be. The conservancy of the hospital compound has been well maintained throughout the year, and the latrine has been kept in as good a sanitary condition as its faulty construction would admit of. During the year 1874 it was the custom for the hospital bheesties to obtain (Vehar Lake) drinking water for the sick from a tap in the compound of the Marine Battalion hospital, but early in the present year the medical officer of the Marine Battalion informed me that the supply being insufficient he could not permit this any longer. Since that date the drinking water has been brought from a well in the Marine Lines. I have not analysed this water; but, as far as look and taste are concerned, it appears excellent, and no ill-effects have followed its use.

11. The total number of admissions has been 624, and these were furnished by 369 Sickness, Mortality, and Invaliding. men in the following proportion:—218 men were admitted once, 89 twice, 38 thrice, 13 four times, 7 five times, 2 six times, 1 seven times, and 1 eight times. Of the 624 admissions, 255 were re-admissions, as shown in the following table:—

Number of first admissions	...	...	...	369
Number of re-admissions	{ for the same disease	...	83	} ... 255
	{ for a different disease	...	172	

The most unhealthy company was No. 6, which gave 107 admissions, and the most healthy was No. 2, giving 53 admissions. There are no local causes to account for this difference. The average daily number of sick was 29·3. Of the 624 admissions, 102 were due to ague; of these 43 were quotidian, 3 tertian, 2 quartan, and 54 irregular in type. In their treatment I found, as in former years, that quinine was undoubtedly the only drug to be relied on in any well-marked case of the disease, cinchonidine having but a very questionable value as an antiperiodic. One case of ague proved fatal: the patient was a half-fed Purdasee Brahmin. Remittent fever furnished 9 admissions; one of them proved fatal from intercurrent pneumonia. 46 cases (including two pleurodynia) were registered under the head rheumatism; many of them were old and worn-out men who have since been pensioned, and some were of syphilitic origin. 6 cases of mumps were admitted; these occurred at different times of the year, and the disease did not at any time prevail as an epidemic. 19 men were admitted for primary syphilis and 1 for secondary syphilis; one of the former was a severe case of sloughing phagedæna, which was arrested and induced to heal by the local application of boracic acid. 4 cases of phthisis were admitted; of these 3 proved fatal and the other was discharged the service. Scurvy has furnished 21 admissions, and, as usual, many men under treatment for other diseases have a scorbutic taint. One aggravated case of the disease proved fatal from œdema of the lungs. 63 admissions have occurred for pneumonia, bronchitis, and other catarrhal affections; 1 death occurred from chronic bronchitis and emphysema. Dysentery has given 17 admissions; all did well under treatment by ipecacuanha. There were 74 admissions for other bowel affections—57 being due to diarrhœa, 7 to colic, and 10 to constipation. One death occurred in a weakly man from diarrhœa. Diseases of the liver furnished 10, 2 being cases of hepatitis, which did not proceed to suppuration, but were successfully treated with chloride of ammonium; of the others, 5 were for simple enlargement, and 3 for jaundice. 4 cases of congested spleen; all recovered. Inunction with biniodide of mercury was used; but as chloride of ammonium was also administered internally, it is difficult to pronounce an opinion as to the efficacy of the former. 9 admissions into sick quarters occurred among the European officers—6 for dyspepsia, 1 for slight sun-stroke, 1 for facial paralysis, and 1 for debility. One officer proceeded on 15 days' sick leave during the month of May, 18 men were sent on medical certificate to their own country, 36 men above 15 years' service were sent before the General Invaliding Committee, and obtained their pensions. The disabilities which led to their being invalided, were as follows:—28 chronic rheumatism, debility, shortness of breath and other ailments incidental to old age and long service; 2 deafness; 4 defect-

ive vision ; 1 varicose veins ; and 1 partial loss of power in right arm. 7 men below 15 years' service were also discharged the service on account of disabilities unfitting them for service in the ranks.

Principal Causes of Sickness.

12. The principal causes of sickness during the year have been ague, diarrhœa, and rheumatism.

Principal Causes of Mortality.

13. 9 deaths occurred in hospital ; their causes were as follows :—1 from extravasation of urine following extensive inflammation in the ischio-rectal fossa, 1 from remittent fever (pneumonia), 1 from scurvy (œdema of lungs), 1 from diarrhœa and great debility, 1 from chronic bronchitis and emphysema, 3 from phthisis, and 1 from ague, quotidian (prostration).

Mortality according to Race.

14. The different races contributed to the mortality as follows :—1 Punjabee Sikh, 1 Mussulman, 1 Purdasee Brahmin, 4 Mahrattas, 2 Purwarrees.

Small-pox.

15. 3 cases of small-pox occurred among the sepoys ; they all did well. 6 cases also occurred among the followers and families ; these latter were all, with the sanction of the Deputy Surgeon-General, transferred for treatment to the Goculdass or Jamsetjee Jeejeebhoy hospitals. No cases of cholera occurred in the regiment, but several cases were reported in the neighbouring streets.

Cholera.

Vaccination and Re-vaccination.

16. These have been practised regularly and successfully as shown in the following table :—

VACCINATION.				RE-VACCINATION.		
Number of Primary Operations.	Successful.	Unsuccessful.	Number of Persons operated on.	Number of Persons operated on.	Successful.	Unsuccessful.
43	39	4	40	84	49	35

17. The general health of the regiment has been quite as good as during the previous year, and although the duty has been hard, the men have not been any the worse for it. The recruits enlisted, have been fairly good specimens of their race, and have, with one or two exceptions, proved equal to the work required of them.

General Health and Physique of the Regiment.

Special Observations.

18. Under this head I am desirous of again calling attention to the defects in the drainage of individual houses in the lines, the urgent necessity for a new hospital latrine, and the advisability of raising the floor of the quarter-guard (inside) and lock-up rooms attached, and covering it with lime.

H. M.'s 21st Regiment N. I. or Marine Battalion.

BOMBAY.—In medical charge of Surgeon-Major W. DAVEY ; Strength, 586.

1. The regiment has been stationary in Bombay, as is usual, throughout the entire year, but has furnished detachments to Baghdad, Bushire, Bassadore ; to the steamer "Dalhousie," gun-boats "Huge Rose," "Quangtung," "Magdala," and "Abyssinia."

Location and Movement of Corps.

2. No change whatever has taken place—the men, women, and children having to resort to the public privies, nearly a third of a mile distant from the lines. There can be no doubt that the bathing places within the huts are generally used as urinals, especially by the women and children. A walk through the lines is sufficiently confirmatory of this, for the street drains, which are in communication with these bathing places, often give out strong ammoniacal odour ; but the nuisance is minimized as much as possible by flushing the drain twice daily ; and if only a more rapid flow through the drains could be obtained, the nuisance

Conservancy and Sanitary Arrangements.

would be scarcely worth speaking about. All solid refuse matter is placed in a dust-bin in the north-west corner of the lines, and removed daily by municipal carts.

3. For drinking purposes from Vohar by means of cast-iron pipes, quality excellent, and supply constant; for washing and other purposes, from wells in and near the lines. It is impossible to say upon how little the sepoy manages to exist. There can be no doubt that the health of the men is often seriously impaired from want of a sufficient and nutrient diet. Rice appears to form their chief article of food, to which is added a little dhal and ghee, and occasionally fish, sold cheap on account of its condition. Spirit is always indulged in, especially by the low-caste men, who make up the bulk of the regiment, and I cannot doubt it is often done at the expense of solid nutriment. Only two kinds of clothing are in use: the ordinary red-cloth tunic and cloth trousers for parades and guard-mounting, and blue cotton cloth for ordinary drill, fatigue, and other regimental duties. The cloth is light and porous, and forms a comfortable and health-preserving dress. Country-made shoes, hard and ill-fitting, are worn by the men on all duties, and are a fruitful source of shoe-bite, which either necessitates admittance to hospital or recommendation to the Commanding Officer to excuse the wearing of boots until such time as the abrasion is healed.

4. Nothing prejudicial to health has been observed. The men may be said to have had an easy time of it, having as many as five consecutive nights in bed during the year. Exercise, amusements, and occupations appear to be very little indulged in.

5. There are two lock-up cells, each having an area of 180 feet, and cubic space of about 1,300; they are ventilated through openings in the doors as well as raised roof-ventilators. There has never, during the year, been more than one man in a cell at a time; and the cells being in an open situation, the superficial area and cubic space appears to be sufficient.

Marches.

6. No marches have taken place during the year.

7. It is sufficient to say that there has been no overcrowding during the year; the only inconvenience felt, is a want of light, which renders an examination of a patient difficult in the wards. Three sweepers are employed to remove excreta from the hospital privies to the public latrines at Sonapur; liquid carbolic acid and McDougall's powder are used to prevent fermentation of excreta, and to deodorize and purify privies and drains. The hospital water-supply is from the Vohar Lake by means of a stand-pipe in the compound; it is constant and sufficient; but in the bath-room, which is on a higher level, no supply can be obtained when it is most wanted, viz., during the morning, and the shower-bath is virtually useless in consequence of there being no means of storing water at night when it might be obtained.

8. 381 cases were treated, being 13 less than in the preceding year; of this number 10 were brought forward from 1874. The admissions numbered 371. Of the total treated, 323 were discharged to duty; 22 were sent on sick certificate, being 16 less than last year; 17 were invalided from the hospital; 5 died (2 less than last year); and 16 remained under treatment on the 31st December. The year 1874, which showed a treated to strength amounting to 69.8 per cent. and of deaths to strength 1.2, and to treated 1.8, was said to have been a very healthy year. The year 1875 exhibits still more favourable results—the rates of treated to strength, deaths to strength, deaths to treated, having been 65.0, 0.8, and 1.3 respectively. The daily average number of sick has fallen from 21 in 1874 to 17.4 in 1875, and deaths have been reduced by 2. 381 cases were treated, but 254 primary admissions, or 43.3 per cent. to strength, were sick and under treatment during the year, the difference being made up of re-admissions of the same individuals for recurrent sickness or other causes. 2 men were admitted five times, 8 four times, 17 three times, 61 twice, and 166 once. In addition to 17 men invalided from the hospital, 5 from the regiment, being found unfit for further service, were also invalided, giving a total of 22 for the year, or 3.7 per cent. to strength.

Re-admissions.

Invaliding.

9. The principal causes of sickness have been, 1st, those coming under the head of general diseases, to which ague contributes the largest share, showing 88 admissions; next in order of frequency comes rheumatism and syphilitic affections, giving 26 and 25 admissions respectively. Eruptive fevers are represented by 2 chicken-pox and 5 measles; continued and remittent fever by 2 and 3 respectively; 2 cases of simple cholera, 3 scurvy, 1 general dropsy, and 2 of phthisis make

Principal Causes of Sickness.

up a total of this class of disease to 159 cases. Local diseases have rather exceeded the above ; of the nervous system there are 4 admissions, 2 for locomotor ataxy, 1 tetanus (idiopathic), and 1 neuralgia. Diseases of the eye furnish 12 cases of conjunctivitis, ear 3, absorbent system 1, respiratory system 29, digestive system 40, urinary organs 11, generative system 3, organs of locomotion 3, cellular tissue 12, and cutaneous system 46 ; total number of admissions of this class 164. General debility gives 5 admissions and injuries 43, viz., burns 2, contusions 24, sprain 9, wound (gun-shot) 1 (accidental and of no importance), fracture 1, wound (simple) 1, and blistered foot 5 ; total admissions, 48.

Principal Causes of Mortality. 10. Died from hepatitis 1, remittent fever 1, general dropsy 1, pneumonia 1, and tetanus 1 ; total deaths, 5.

Mortality according to Race. 11. 4 Hindus, or 0·9 to strength, died ; and 1 Mussulman, or 0·5 to strength.

12. The following table gives the number of admissions month by month during the year, as well as the rainfall, and it will be observed that generally the admissions during the rains are more frequent than at other periods of the year. Damp appears to be an active agent in predisposing to disease ; but the exposure at night before the monsoon commences, which the men indulge in to escape the great heat of their huts and to court sleep, has a great deal to do with the increased sickness of the rainy months :—

Months.	Admissions.	Deaths.	Rainfall.	Fevers.	Rheumatic Affections.	Dysentery.	Diarrhoea.	Chest Affections.	Other Diseases.
January	32	...	...	5	...	1	...	3	23
February	31	...	...	10	...	4	1	1	15
March	19	1	...	5	2	...	...	1	11
April	43	...	...	9	...	...	3	3	28
May	26	1	...	6	3	2	1	1	13
June	34	2	22·24	18	1	2	1	2	10
July	39	...	13·40	11	1	2	1	5	19
August	35	...	14·91	8	8	...	...	3	16
September	35	...	25·14	4	5	1	4	2	19
October	29	...	30	4	4	1	...	5	15
November	28	1	...	8	...	...	...	2	18
December	20	...	...	5	2	...	...	1	12
Total ...	371	5	75·36	88	26	13	11	29	199
Average ...	31	...	...	7 $\frac{1}{3}$	2 $\frac{1}{6}$	1 $\frac{1}{12}$	0·9	...	...

Epidemic. 13. No epidemic disease in the regiment during the year.

14. 54 children were primarily vaccinated : 52, or 96·3 per cent., were successful—32 under one year and 22 above one year of age. 56 recruits re-vaccinated—20 successful, and 36 failed.

General Health and Physique of the Men.

15. The general health of the regiment has been good and, considering the class from which the regiment is mostly recruited, their physique is fair.

Treatment of Disease when special.

16. Subcutaneous injection of chloral hydrate was tried in two cases of cholera ; both recovered, but the cases were not severe, and I am not inclined to attribute recovery to its use.

17. Nothing has occurred during the year calling for remarks out of the usual course, but I wish to notice the much-vexed question of invaliding. It is surprising to see how aged some men appear to be after such a very short service as 15 years, when the men should not be, if not over age at enlistment, above 33 or 35 years of age. A Native surely should not break down at that period of

Special Observations.

his life, but it will be found a fact in most Native infantry regiments. The decrepit appearance is, no doubt, heightened by much previous starving and malingering. Medical officers would be spared much harassment if the first period of service for pension was fixed at 20 years, and sufficient care and scrutiny taken that no man was allowed to enter the service visibly above 20 years of age.

Instruction of Native Medical Pupils.

18. These are daily instructed at the bed-side, and they are encouraged to keep up and advance their knowledge of English.

19. The year 1875 has been very favourable, in a medical point of view, compared with 1874: there have been fewer admissions from disease, more men discharged to duty, many less sent on sick leave, fewer invalided, fewer deaths, and a smaller daily average of sick men.

H. M.'s 26th Regiment N. I.

SURAT.—In medical charge of Surgeon W. McCONAGHY; Strength, 614.

Number of admissions from all causes	...	...	...	1,240
Do. remaining on 1st January 1875	...	...	...	24
Daily average number of sick during the year	...	...	...	34.4
Percentage treated to strength	...	...	...	205.8
Deaths to strength	...	...	...	1.79
Do. to treated	...	...	...	0.87

1. During the year under report the regiment was stationed at Surat until the 20th October, when, leaving a detachment behind to furnish guards, &c., it proceeded to Bombay. The general health of the regiment was only fair up to the beginning of March, but from this time to the end of May it gradually improved. Early in June the admissions from ague began steadily to increase, and from this time until the departure of the regiment for Bombay ague was very rife both among the sepoys and their families. With the exception of the detachment above referred to, the regiment was encamped in Bombay on the Boree Bunder reclamation ground from the 21st October until the 2nd December, when it left for Tanna *en route* to Poona. The general health while in Bombay was good, though the sanitary condition in the vicinity of the camp was bad, owing to a nightsoil dépôt being situated near; and the sea-wall close to the tents was objectionable, as it was frequented for calls of nature by Native boat-men and coolies, though measures were taken by the police and regimental authorities to prevent them as much as possible. In consequence of the above circumstances the smell in camp was occasionally most disagreeable. On the march the men generally appeared to enjoy good health, though towards the end of it a number of them suffered from chest complaints owing to the sudden change of climate after ascending the Ghâts. The regiment arrived in Poona on the 15th December, and remained in tents until the 27th, when it entered the lines which had been occupied by the 17th Regiment N. I. The health of the detachment at Surat was reported as only fair during the latter part of October owing to the prevalence of ague and chest complaints, but from this date until its departure on the 27th December, to rejoin the head-quarters at Poona, the health of the men gradually improved.

2. During the year under review the health of the men was not so good as during the preceding two years when judged by the daily average number of sick, though the admissions were 27 less than in 1874.

Sickness, Mortality, and Invaliding.

Total admissions, 1873	...	...	...	1,214
Do. do. 1874	...	...	...	1,267
Do. do. 1875	...	...	...	1,240
Daily average number of sick, 1873	...	...	...	27.3
Do. do. 1874	...	...	...	31.3
Do. do. 1875	...	...	...	34.4

The diseases furnishing the greater part of the admissions were, in their order of frequency, as follows:—Ague 591, contusion 116, bronchitis 87, boils 80, rheumatic affections 53, diarrhoea 38, conjunctivitis 28, syphilis (primary 9, secondary 16) 25, dysentery 24, splenitis 18, pneumonia 16, scabies 15, hepatitis 11, brow ague 11, pleuritis 9, guineaworm 5, cholera 3. The admissions from ague as compared with the previous year were 215 less. The disease

was generally of the quotidian type and of a mild form; however some of the cases were of a more severe character, and 2 of them proved fatal. The treatment usually pursued, was the administration of quinine and liquor arsenicalis, or the hypodermic injection of quinine. The latter operation was frequently performed, and the results were generally satisfactory. It was very exceptional for the patients to complain of pain or irritation of the parts after the operation, and the site of the injection was seldom followed by inflammatory symptoms, and never by sloughing. The treatment by cinchonidine was also tried on a number of patients, and it appeared to act well in cases of a mild nature; but in those of a chronic character, or more severe type, it was generally less certain in its action as an antiperiodic than quinine. 116 cases were admitted with contusion; these were generally the result of badly-fitting shoes, and were 47 in excess of those of the previous year. Bronchitis was prevalent during the greater part of the year; 87 cases were admitted as compared with 23 in the preceding year. The disease in some instances was of a severe nature, and required a long course of treatment before the patients were able to resume their duties. One patient, who was much debilitated, was sent on sick certificate for six months. This disease, besides, formed a troublesome complication in some of the cases of ague. The rheumatic affections were chiefly of a chronic character, and generally occurred in old men. Syphilis was much less prevalent during the year in Surat than in 1874; however, during the time the regiment was in Bombay the admissions from this disease rapidly increased. There were 9 cases of primary syphilis during the year; but as 5 of these occurred in Bombay in the month of November and 3 shortly after the departure of the regiment on 2nd December, consequently only 1 occurred in Surat as compared with 13 in the preceding year. The disease contracted in Bombay was of a severe type, and when the regiment was leaving 3 cases of primary syphilis and 2 of bubo were left behind for treatment, and have not yet rejoined. 16 patients were admitted with secondary syphilis; the disease in some instances was of long standing and required lengthened treatment. The admissions from dysentery were 13 more than in 1874; the disease in a few of the cases was of a severe character. A patient that had been under treatment for nearly two months, and who was in a weak and debilitated condition, was sent on sick certificate for eight months. A second case, which had been in hospital for 11 days, proved fatal. The cases of splenitis were chiefly of a chronic character and generally associated with ague. During the year there were 16 admissions from pneumonia as compared with 5 in the preceding. In the month of January, chiefly owing to a cold north-eastern wind which prevailed, 6 cases were admitted, 2 of which proved fatal. In August a third death occurred: the patient had formerly been subject to scurvy, and his general health was much impaired in consequence. The three remaining deaths from this disease occurred in December: the first had been under treatment for cholera in Bombay, and was progressing favourably until he was attacked with pneumonia, which rapidly proved fatal, as the patient had been much reduced in strength from the previous disease. The second case occurred in the detachment at Surat, where the patient had been in hospital with ague for six days before this disease became associated with pneumonia. The last case was that of a Native officer who had for some time been suffering from impaired health; and though he marched with the regiment from Bombay, yet on several occasions he received treatment though not actually on the sick list. 3 cases, who were much reduced in strength and who required a change of climate for their recovery, were sent on sick certificate, respectively, for six, four, and three months. The admissions from scabies, pleuritis, brow ague, and guineaworm were all of a mild character. There were 11 admissions from hepatitis; they were generally of a chronic character, and 2 of them, who had been under treatment for a considerable time without any well-marked improvement, were sent on sick certificate.

3. On the 26th June the first case of cholera occurred in the cantonment; the patient was a domestic servant, and died the day after attack. From this date until the 26th July 5 other cases occurred: 2 of these were sepoy, who recovered from the immediate effects of the disease, but one of the patients continued in a very weak and emaciated condition for a considerable time, and consequently was sent on sick certificate. The 3 remaining cases were camp-followers, 1 of whom died. Cholera was more or less prevalent in the city and surrounding villages for some time before the camp was attacked; this in a measure may be ascribed to the precautions which were taken to prevent the sepoy and their families having communication with affected parts. The measures taken to segregate the patients and to purify and disinfect the latrines and houses in which cases of this disease occurred, were much the same as those referred to in my report for 1872. A case of cholera occurred in the regiment on the 17th November when stationed at Bombay; the patient was progressing favourably, until the disease became complicated with pneumonia, when it rapidly proved fatal. Hydrate of chloral in 10 to 15-grain doses was usually administered every three or four hours during the collapsed stage, and the results were for the most part satisfactory.

4. 11 deaths occurred among those under treatment in hospital, viz. 6 from pneumonia, 2 from ague, and 1, respectively, from each of the following diseases:—remittent fever, dysentery, and debility. In September a case of rheumatism associated with heart symptoms, but not of a well-marked nature, was discharged from hospital with a view of going on sick certificate, but he died suddenly on the third day after discharge; a *post-mortem* examination showed valvular disease of the heart. 2 deaths occurred among those sent on sick certificate during the year. 16 men obtained sick leave for periods varying from eight to three months. 44 recruits joined the regiment, and 19 were invalided from the following causes:—debility 9, chronic bronchitis 3, chronic bronchitis and debility 2, chronic rheumatism and debility 2, rheumatism 1, chronic rheumatism and secondary syphilis 1, hemorrhoid 1.

5. The rainfall during the year at Surat was 48 inches and 68 cents; this is 7 inches and 57 cents more than the rainfall of the previous year.

6. The highest temperature registered in the hospital verandah was 99° at 2 P.M. on the 12th April. On the 16th April 1874 the thermometer registered 105° at 2 P.M. in the same place, which is 6° more than the highest temperature obtained during the present year. The lowest temperature was on the 31st January, when the thermometer stood at 51° at 6 A.M.

7. Vaccination and re-vaccination have been carefully attended to throughout the year.

REMARKS BY THE DEPUTY SURGEON-GENERAL G. G. MAITLAND.

For several years past this corps has been one of the most sickly in the Bombay Army. While at Surat the general health of the men improved. It is hoped the invigorating climate of Poona will prove more beneficial to it than the Konkan.

H. M.'s "Aden Troop."

KHOR MUKSAR.—In medical charge of 2nd Class Hospital Assistant Shaik Shabudin; Strength, 90·7.

1. The climate of Aden varies considerably during the year. From the latter part of June until the end of October or beginning of November the temperature is much increased during the day, but the heat is greatly moderated by the sea-breeze which set in this year, rendering the evenings and nights delightfully cool and refreshing. The change was only observed at Khor Muksar, where the troop is stationed. There was little or no rain during the year. The climate in November and December became cold and salubrious (which was never been noticed at Aden); this was owing to the clouds hanging in the atmosphere and giving little or no rain.

2. During the year the troop with its head-quarters had marched on patrolling duties towards Shugrah Bunder, the capital of the Fudhli District, where Sultan Hydra, Chief of Abyan, lives, and is about 66½ miles from Khor Muksar.

3. There is no hospital nor any accommodation whatever for hospital assistant or dooly-bearers. Sick men remain in the lines, where no supervision can be exercised over them. The hospital assistant lives and dispenses medicine in a cell of the standard guard; when this cell is required for a prisoner, he has to remove into a tent even in the hottest weather. Owing to the absence of latrines, sick men have to go a very long distance in the sun.

4. The prevailing disease during the year was ague. A large number of admissions from fever occurred in the month of January last, owing to the visit they had made to Lahej on duty; since then the fever has diminished. The total number of admissions for past year was 188, and 4 remained from preceding year. The average daily number of sick was 5·5.

5. The troop remained during the year almost always in good health. Fever, intermittent, caused the greatest number of admissions, the total being 96, or 30 less than in the preceding year. Of dysentery there were 5 cases, all of which yielded to treatment.

6. 3 sowars and 1 duffedar were granted sick leave to their native countries for change of air; all of them were sufferers from ague with enlarged spleen, which would not yield to treatment as long as they were here. 2 sowars were invalided during the year—one from asthma and the other from internal piles.

7. 12 vaccinations successful.

8. Special cases of diseases are sent to Aden for treatment by the medical officer in charge of the staff and detail hospital.

H. M.'s 2nd Company, Native Artillery.

ADEN.—In medical charge of Surgeon-Major JOHN GRANT ; Average Strength, 66·83.

1. No. 2 Company, Native Artillery, have not moved from Steamer Point, Aden, since their arrival on the 2nd February 1874. The climate at Steamer Point is scarcely, if at all, affected by the winds, which on passing the heated rocks at the camp is rendered very warm and sometimes even close and stifling. It is thoroughly open, and exposed on all sides but one to sea-breezes.

2. The sanitary and conservancy arrangements have been exactly the same as in 1874. There has been no cause for any suggestions in this matter during the year.

3. The water supplied has been the same in quantity as last year, and obtained from the same source. It has been good and free from all organic impurities. No suggestions have been found necessary either as regards quality or quantity. The ration has consisted of the same articles as last year. The food has been reasonable in price and of good quality, and quite nutritious. The clothing of the men has been the same as last year. They have always worn suitable clothing according to the season of the year.

4. The duties have been—morning parade with evening roll-call, and fatigue duty as occasion has required. They have always permitted 2 guards, each consisting of a naique and 4 men, the quarter-guard and magazine-guard. The latter one has had always one more man at night. The morning and evening gun has always been fired by the Native Artillery. The duties have not in any way exercised a prejudicial influence on the health of the men, or interfered with their taking exercise as they pleased. The men have got a gymkhana ; but, as a rule, they do not seem to take advantage of it.

5. Exactly the same as last year, except that the walls to within a foot or so of the top have a double layer of straw-matting, which effectually prevents the wind from getting at the sick, which in the case of rheumatism would prove most injurious. The ventilation is by opposite doors, two on each side and one at each end of the building. There is also open cane-work at the top all round. The ventilation is perfectly satisfactory. The ward has not been overcrowded at any time during the past year. The accommodation for the sick is ample. The ward is intended to hold 8 men. No suggestions of any kind necessary. The conservancy has been carried out exactly the same as for 1874.

6. Whenever a man is admitted into hospital, the allowance of water which he gets when in the lines is brought to hospital, viz., 3 gallons of condensed water and 2 of brackish.

7. There has been so very little sickness in the company during the past year that no remarks on the subject are necessary.

8. There has only been one death in hospital, of a man who had contracted phthisis pulmonalis while on furlough. On his return the disease proved to be in an advanced stage. He sank rapidly, and died after having been only 54 days in hospital. The disease in this case was purely hereditary. The man who died out of hospital was shot dead by one of the 2nd Grenadiers N. I. while present at a marriage feast in the lines of that regiment. Both of these men were Hindus.

9. So little rain falls at Aden that it in no way affects the health of the men.

10. All the children have been vaccinated, but in the case of one it failed. It has not been found necessary to re-vaccinate any of the men.

11. The general health of the men for the past year has been remarkably good, and the sanitary condition of the lines in every respect is all that can be desired.

H. M.'s No. 5th Company, Bombay Sappers and Miners.

ADEN.—In medical charge of Surgeon G. WATERS ; Strength, 97.

Location and Movement of Corps.

1. The company has been stationed at Aden throughout the year in lines situated in the western extremity of the Crater.

2. No exception is taken to the lines as regards available space, bazaar, neighbouring villages, drainage, and tanks; but strong objections may be taken to the nature of the quarters which immediately after a fall of rain—a very unusual occurrence at Aden—were found to be small, smoky, badly-ventilated unsubstantial, leaky, dark, and destitute of all comfort, especially the quarters occupied by the married men of the company.

3. A sufficiency of condensed water for drinking and culinary purposes is supplied for ablution; it is drawn from a well close to the lines. The rations are ample in quantity and of fairly satisfactory quality. The company is clothed like Native regiments for all parades and drills; but, at work, dark, blue, loose-fitting cotton clothes are worn: both descriptions of clothing give satisfaction to all concerned.

4. Guard and orderly duties, but in addition they have been engaged during a great portion of the year in blasting operations. Judging by the small daily average number of sick, viz., 1·57, the occupations do not appear to have in any way injuriously affected the health of the men, although the admissions to hospital have been undoubtedly increased by accidents whilst at work, resulting, however, in nothing more serious than contusions and ulcers. The men of the company do not engage in amusement or occupations when off duty.

5. The company has no hospital buildings of its own, the sick being treated in the regimental hospital of the Native corps stationed at Aden.

6. Out of a total strength of 97, 46 only, or 47·42 per cent. to strength, have come under treatment during the year, which must be considered very favourable, bearing in mind that the admission list has been swelled by slight injuries whilst at work. There was no mortality during the year; 4 men were invalided.

7. Ague gives the greater number of admissions to hospital. Next in order of frequency come diseases of the cutaneous system, then injuries of the upper and lower extremities. Although scurvy gave no admissions, the company has not been entirely free of it; as many as 21·27 to strength were found affected in the months of July, August, September, and October. In no case was admission to hospital found necessary, but the men were sent there every morning, and lime-juice mixture was administered to them. There were 20 cases in all—11 who were either not married or had not their families with them, and 9 family men. The percentage of single to married is as 25 to 18, and the greater freedom from scurvy enjoyed by family men goes to disprove the general notion that they suffer more from this disease than single men, who are supposed to be better off for rations, having no one to share with.

8. The few showers of rain which fell towards the end of the year have not been immediately productive of an increase of ague.

9. Small-pox was present in the native town, but not to any extent, and the disease did not spread to the garrison.

10. 12 children under 1 year of age have been vaccinated and one above that age; 11 of the operations were successful, and 2 were doubtful. No re-vaccinations were effected.

11. The general health of the company has been good, and in point of physique the men are said to compare favourably with other Native troops.

12. I strongly recommend that the company be provided with better quarters.

13. The strength of the company during the year was 97, and the percentage of treated to strength, inclusive of re-admissions, is 47·42; excluding re-admissions, the percentage of the treated falls as low as 42·2. The average number of daily sick is very small, viz., 1·57, and this notwithstanding that the men appear to have been rather hard-worked, having had only four consecutive nights in bed during the year. The clothing, sanitation, water-supply, and rations—all give satisfaction, and the duties of the company do not appear to have exerted any prejudicial effects on the health of the men,

H. M.'s 2nd Grenadier Regiment N. I.

ADEN.—In officiating medical charge of Surgeon C. T. PETERS; Strength 592.

1. The regiment was stationed at Aden from the beginning of the year till the 16th of November, when the first detachment with head-quarters embarked for Vingorla *en route* to Belgaum; the second left on the 12th December; and the third and fourth detachments are expected to arrive in Belgaum shortly. Detachments were furnished to the Isle of Perim, every two months, consisting of 50 rank and file under the command of a European officer. A detachment of two companies was also sent to the Isthmus every two months, but its strength was included with that of the head-quarters, and the sick were treated in the regimental hospital.

2. In a military point of view the peninsula is divided into three portions, of which (1) Steamer Point is by far the coolest, being exposed to the sea-breeze during the hot months, which renders it about 6 or 8 degrees cooler than the Crater; (2) the Isthmus is exposed to the sea-breeze only from the east and south-east, and is comparatively cool in the hot season; (3) the camp in the Crater is by far the hottest, being surrounded almost on all sides by bleak barren rocks. The furthest station at Khor Muksar for the Aden Troop must not pass without mention, although, strictly speaking, it is not situated in the peninsula. This place, however, is so favourably situated, having the sea on either side, that the excessive hot weather which is universally complained of in Aden is very much moderated here by the sea-breeze, and from its pleasant situation and easy accessibility to Aden it well deserves the attention of the military authorities for being made the future head-quarters of the force in Aden, instead of the Crater. The highest temperature during the last year was 104° in July, and the lowest 70° in January; the greatest daily variation—14°—took place in August 6th, when after a hot day at 92° the thermometer at once fell to 78° during a temporary north-east breeze at 7 P.M., and rose again to 83° at 10 P.M. The daily variation of temperature amounts to from 3° in the cold weather to 12° in the hot weather, giving an average of about 5°. During the months of August, September, October, and half of November I kept a hygrometric register, from which it appears that the difference between the wet and dry bulb during the hottest months is very great, amounting sometimes to 18°, and when the moist easterly breeze is blowing it is so small as 5°. The mean annual temperature was 85° 3' F. Aden is exposed to the S.W. and N.E. monsoons. The S.W. wind, as it is felt in the Crater, is generally hot, and it gives rise occasionally to dust-storms which darken the air completely; the sun appears like a ball of fire through this atmosphere of dust, while the lights flicker only like what happens during a thick London fog; these dust-storms frequently give rise to electrical disturbances. Such are the characters of the Shemal. The N.E. monsoon commences in October and brings on the cool weather, and the air is moister. The S.E. breeze generally brings in rain to the Crater; but the showers during the year are very scanty, even when there is a heavy fall at Steamer Point, the rain clouds being intercepted by the bleak and lofty peaks of the Shumshum range. During the last year there were a few passing showers in the Crater, but the amount of rain-fall was so small that it could not be registered.

3. The rooms are so hot that the men are obliged to sleep in the open air during the hot season, thus rendering themselves liable to pneumonia, dysentery, and other acute diseases. The same remarks apply to the quarter-guard in the lines near the Native officers' quarters as well as the European officers' quarters. The refuse water is allowed to sink into cess-pits; early steps should be taken to introduce a proper system of drainage. The latrines are placed by the side of the main thoroughfare in the cantonment and at a considerable distance from the pendalls of the men and families. It appears that, after the frequent reports that have been made by the medical officers before me, they have been considerably improved, but there is still scope for improvement; as, owing to defective construction, the fluid excreta cannot entirely run down into the drain intended for it, but some portion of it is scattered over the pavement in front, and the latrines are not unfrequently charged with an ammoniacal odour. If a semi-circular ridge, about 6 inches high, were raised in front of each rent, and a channel made underneath each iron pan, the fluid would run down backwards into the drain instead of being scattered in the surface in front. It would also be advisable to remove the solid fluid excreta separately and to have the dry-earth system brought into operation—the present system of mixing both the solid and fluid excreta being very detrimental to the health and comfort of the people who live alongside the road by which the conservanry carts pass on their way to Holhat Bay.

4. There are four sources of water-supply : rain water as collected in tanks, wells, Shaik Othman aqueduct, and condensed water. Tanks for collecting

Water. rain water have existed in Aden from a very early date. About 50 of such tanks are said to exist, which, if entirely cleared out, would have an aggregate capacity of nearly 30 millions imperial gallons (*vide* Captain Hunter's Handbook). Within the last few years some of these reservoirs have been restored, and are capable of holding 8 millions gallons of water. The uncertainty of obtaining a permanent water-supply from this source will be evident from the fact that towards the latter half of this year the tanks have been perfectly empty, and consequently only condensed water was used for drinking purposes. There are two wells from which supplies are drawn alternately for the troops. These waters are more or less brackish ; when the water is drawn after a few days' rest, it is pleasant to the taste, but as the supply gets exhausted the water becomes highly brackish. An analysis by Drs. Simpson and Nolan of them is herewith appended after being reduced into grains per gallon :—

	Well No. 21.	Well No. 31.
Total solids at 280°F. ...	299·31 grs. per gallon ...	181·4 grs.
Chlorine ...	5·0 do. ...	8·0 „
Sulphuric acid ...	4·67 do. ...	4·67 „
Lime ...	10·15 do. ...	25·67 „
Magnesia ...	43·0 do. ...	47·6 „

Hardness according to Clarke's Scale.

Before boiling ...	30·0 grs. ...	21·30 „
After boiling ...	11·55 „ ...	6·70 „
Ammonia, free... ..	Inappreciable ...	Inappreciable.
Do. albumenoid ...	·084 grs. per gallon ...	0·0865 grs.
Total oxygen required at 140°		
in presence of acid ...	·0448 do. ...	0·378 „
Colour ...	None ...	None.
Odour ...	Sulphurous ...	Slightly sulphurous.
Taste ...	Brackish ...	Brackish.
Re-action ...	Slightly acid. ...	Acid.

There are two sweet-water wells in Shaik Othman from whence this water is drawn and conveyed for the distance of 7 miles by means of a rudely-built aqueduct over the sandy strip of land which connects the mainland to Aden. The water, when first drawn, is not at all brackish to the taste, but it becomes highly charged with chlorides and other impurities as it passes along the rude masonry of which the aqueduct entirely consists. The analysis of water as it is issued to troops is as follows (by Drs. Simpson and Nolan) :—

Total solids at 280° F. ...	181·4 grs. per gallon.
Chlorine ...	4·0 do.
Sulphuric acid ...	3·11 do.
Lime ...	5·08 do.
Magnesia ...	40·8 do.
Hardness before boiling ...	21°·3 do.
Do. after boiling ...	7°·7 do.
Ammonia, free	Inappreciable.
Do. albumenoid	Not examined.
Oxygen at 140° in the presence of acid ...	0·308
Colour ...	Nil.
Odour ...	Nil.
Taste ...	Brackish.
Re-action ...	Neutral.

There are three condensers : one at Aden, one at Isthmus, and one at Steamer Point. The condensed water on leaving the refrigerator is passed through a filter consisting of a layer of carbonate of iron ; and after filtration the water is collected in wooden casks which are placed along the sea-beach, and being exposed is quite liable to contamination with sea water and other impurities. The water has a heavy and a strong taste of iron ; when it has been allowed to stand a few days, a red sediment of oxide of iron is formed. I understand that formerly charcoal and sand were used in the filter, but a few years ago they were replaced with carbonate of iron, which is changed every week, when the old carbonate is put out to dry for subsequent use. The introduction of this system does not appear to be more

advantageous than the other, for the water does not get properly oxygenated, and on the other hand it acquires a chalybeate taste. I consider that alternate layers of gravel, charcoal, and sand, on the principle of the Macnamara filters, would be more suitable for this purpose; and, if the water is allowed to percolate slowly through them from a height of 8 or 10 feet, the water would be aerated and have a pleasanter taste.

5. The vegetables which are sold in the bazaar and issued by the Commissariat have very little antiscorbutic properties. Potatoes should be issued twice or three times a week to every sepoy instead of pumpkins and water-melons. I would also recommend that tamarind and limes should be issued as articles of diet alternately with cocum, which, owing to its age, deteriorates in quality. In the bazaar the articles of food are very dear and often inferior in quality.

6. Owing to the reduction of the strength by invaliding, sick leave, and furlough, while the duties remained the same, the men had proportionately increased duties to perform, so that they had scarcely 2½ nights in bed at one time; and when it is remembered that the men had been suffering from scurvy, and had become very much weakened after three years' residence in a trying climate, it will be evident that many were found unequal to the work. After a prolonged residence at Aden very few were inclined for gymnastics; still about a dozen men or so used to be regularly seen practising gymnastics of an evening. Some of the men employ their leisure hours in following their favourite pursuit in the way of tailoring, carpentering; some are silversmiths and some work in leather.

7. The head-quarter detachment left Aden on the 16th November for Vingorla, where it arrived on the 27th idem. During the voyage an excellent set of rules was issued, in accordance with which the families and men were kept on deck for a certain number of hours daily so as to allow the holds to be washed and disinfected; the "tween decks" were swept twice daily, and every morning solution of carbolic acid was sprinkled over the place so as to purify the air, especially as the port holes could not be kept open owing to the weather. On board the only cases of sickness were bowel-complaints and ague; one case of the former proved serious, but he rapidly regained his health on the march. Leaving Vingorla on the 2nd December the detachment arrived at the top of Parpuli Ghât on the third day; but as the three days' continuous march had given rise to a large number of foot-sore and shoe-bite cases, and as it was deemed necessary that the men should have a little rest, a halt for an extra day was ordered on the recommendation of the medical officer. The remaining marches were made without any difficulty. There was no serious case of sickness on the way, and the detachment arrived in Belgaum on the 10th December. The halting places between Vingorla and Belgaum were Akheri, Danowli, Parpuli Ghât, Kanur, Data, and Bachi. At Danowli the encamping ground was damp, being too close to a nullah which was full and surrounded by rice-fields. The water-supply was good, except at Akheri, where it was muddy. There are wells at Akheri, Parpuli Ghât, Data, and Bachi; the one at the Ghâts is particularly good. At Danowli the water is obtained from the nullah, and at Kanur from the Ghatprabah River. The men, on the whole, improved very much during the march.

8. Since Dr. Simpson wrote the last report, the roof of the hospital has been thoroughly altered, and the building as it is now is as good as can be desired. The building of the new mess-house for the officers of the European regiments has not interfered with the free circulation of air. The only requirements now are a small dark room for the purpose of making ophthalmoscopic examinations and a well-illuminated room facing the south for operative purposes and for examinations, as the room at present used as the office is rendered dark by the side verandahs.

9. The total number of admissions from all causes during the year was 317; the actual number of persons treated was 204 and re-admissions 113. Sick, Mortality, and Invaliding. Of these 272 were discharged cured, 24 were sent to India on sick leave. There was only one death in hospital from remittent fever with pleurisy supervening. The patient caught a severe chill while on sentry duty at the main gate one night, when a cold breeze suddenly set in; a severe attack of fever followed. He was ill one day in the lines; on the third day after his admission pleurisy supervened, and he died on the fifth day. There were 4 deaths in the lines, of which 3 took place in one day—a private having shot a subedar and a blacksmith and another sepoy of the Native Artillery; he then shot himself. The other case was also from a self-inflicted gun-shot wound: fragments of the bullet were found lodged in the left lung; it had fractured two or three of the adjoining ribs, the stomach was penetrated right through in two places, but the heart was quite untouched. The total number invalided since the last annual report was 20.

10. Scurvy gave 29 admissions; of these 6 were sent to India on sick leave, 6 were invalidated from this cause, and a good many, shown under the heading of general debility, were also complicated with scurvy, which has been an indirect cause of a great many more admissions than are shown under its heading. Besides, a large number of men who were fit for duty were found at the periodical inspections to be affected to some extent with a chronic form of scurvy. From the 31st July till the time of leaving Aden there were 111 cases treated in the lines by marching them every morning, when off duty, to the hospital, and serving out lime-juice. On an analysis of this number I find that of family men there were 23 cases; of single men, or whose families were in India, 88 cases. Classified according to caste there were—Hindus 102, Mahrattas 53, Purwarrees 25, Mochees 3, Pardasees 21, Mussulmans 6, Jews 2, Christians 11; total 111 out of a strength of 553, giving a percentage of 20·07. Out of 439 single men there were 88 cases, or 20·05; and 114 men with families, 23 cases, or 20·02. According to caste—

Hindus...	244 Mahrattas	...	...	...	53	or 21·72
	107 Purwarrees	...	...	...	25	23·36
	90 Pardasees	...	...	...	21	23·33
	26 Mochees	...	...	...	3	11·54
56 Mussulmans...	...	...	...	...	6	10·71
9 Native Christians	...	...	...	...	1	11·11
21 Jews	...	...	...	...	2	9·52

It will thus appear that married have suffered equally with single men, or those whose families were away. It cannot, therefore, be said that the presence of women and children caused an increased number of scurvy cases. Among married men, on the other hand, they show a much smaller percentage among the Sappers and Miners than single men. Judging according to caste, the Parwarees have suffered most (23·36 per cent.), the Pardasees next (23·33), then Mahrattas (21·72). Amongst Mochees, Mussulmans, and Native Christians the percentage has been just about one-half (between 10 and 11 per cent), whilst among Jews it is only 9·52 per cent. Again, those whose pay is good and can live comfortably have never suffered from scurvy. It will thus appear that those who feed themselves well, whether Hindus, Mussulmans, or others, never get scurvy, but those who are underpaid or starve themselves have suffered most. The necessity of supplementing their diet with vegetables possessing antiscorbutic properties, such as potatoes, tamarind, and limes, has already been pointed out. In most cases the supplies of lime-juice from Bombay were reported bad, and fresh lime-juice was squeezed out for issue instead. This helped in a great measure to combat more readily the progress of the disease amongst these who were under treatment. Ague and remittent fevers were the cause of 51 admissions, while there were 155 last year, being less than one-third. The largest and worst forms of these complaints are met with when the hot land wind prevails, several cases occurring simultaneously. Although malaria is not so rife in Aden as it is in India, still I cannot agree with others that it is altogether absent. The decomposing sea-weed left on the beach, where there is clay instead of sand, when the water has subsided at low tide is a source of malaria, and I have heard of two instances amongst officers in the European regiment having had to leave Aden owing to a severe attack of remittent fever, their houses being situated close to the sea-beach. Diseases of the lungs come next in the order of frequency owing to the sudden setting in of the cold breeze at night after a hot and sultry day. They have been the cause of 27 admissions. There were 9 cases of valvular disease of the heart and palpitation and 21 cases of dysentery, 7 of diarrhoea, and 1 of dyspepsia. The small number of diarrhoea and dyspeptic cases shows the advantage of using condensed water. Dysentery shows an increase of 10 cases over last year, and presents another instance of malarious influence working in Aden, where the cases originated. Diseases of the liver.—9 cases produced by malaria and exposure to cold and damp. Diseases of the spleen, 3 cases of enlargement, treated with biniodide of mercury ointment and quinine injections (hypodermic) with varied success. Skin diseases were the causes of 7 admissions; of these there were 9 ulcers. In one or two instances the ulcers were of a specific nature (known as Aden ulcers), where the skin dies and forms a circular slough. It appears especially in men who have been debilitated from climatic causes and want of nutritive food. The treatment consisted in destroying the slough and unhealthy portions of the ulcer with nitric acid, and poultices applied till the slough separates, and subsequent dressings of carbolic oil, with an occasional touch of sulphate of copper or nitrate of silver. The limb requires to be bandaged well in order to give support to the muscles and to moderate the circulation. Internally, iron and cod liver oil or bark and ammonia are indicated. Under the head of injuries there was a case of compound fracture of the tibia, the man having been run over by a fire-engine. He was a young man, and under ordinary circumstances would have soon recovered, but in consequence of long confinement scurvy appeared; the callus was re-absorbed, and effusion of blood set in in its place. Under proper rest with splints and nourishment he sufficiently recovered to enable him to proceed to Bombay

for treatment, where he subsequently did well. Syphilis.—I am happy to notice only 2 cases under this head. The man who died of remittent fever was a Hindu.

11. Of 43 primary vaccinations 36 were successful, and of 141 re-vaccinations 62 were successful.

12. The general health and physique of the men, after nearly 3 years' residence in Aden, exposure to extreme heat during this period, absence of proper food, and prevalence of scurvy, were very much below par in health, incapable of enduring fatigue, and susceptible to sickness. The physique of the men has been very low; but it is to be hoped that, after a few years' residence in Belgaum, the men will regain their wonted vigour, although, judging from the experiences of the 5th Regiment, it seems that it will take years before the men become as strong as they were before going to Aden. It would be extremely desirable in future to restrict the residence of a regiment in Aden to 18 months, or 2 years at the utmost. Treatment of certain diseases by hypodermic injection has been tried during the past few months. (1) Morphia has been subcutaneously injected in chronic rheumatic and neuralgic complaints with very good success. (2) Quinine dissolved in citric acid has also been tried in doses of 2 to 5 grains by means of hypodermic injection in cases of inveterate ague, enlargement of the spleen, and hepatic enlargement; but the slough, by which the operation was followed in every case at the point of insertion, has been the chief objection to its being used so frequently as would be necessary to produce satisfactory results.

13. To sum up all that has been said in the previous remarks.—The lines, owing to their position in relation to the native town, the range of hills, and their arrangements, are unhealthy in comparison with the lines of the Sappers and Miners. It would have been more conducive to the health of the men had they been built on a more open place like the neighbourhood of Khor Muksar, where the Aden Troop is stationed. In order to ensure a more perfect system of conservancy, the latrines ought to be so improved as to allow a complete separation of the fluid from the solid excreta. Macnamara filters should be used in filtering the condensed water instead of carbonate of iron, as at present; and for the conveyance of the aqueduct water there should be iron pipes laid, as the water at Shaik Othman appears to be drinkable, while after its passage along the aqueduct it becomes very brackish. If scurvy is to be prevented, rations should be issued to the men once daily or every other day, instead of once a fortnight, when they have a temptation to sell their rations and convert it into money; also potatoes, tamarind, and limes should be used alternately with country vegetables and cocum. The term of residence of a regiment should be limited to 18 months, or 2 years at the utmost.

14. The medical pupils have been instructed twice every week in materia medica, physics, and elementary anatomy and surgery, including the application of splints and bandaging.

REMARKS BY DEPUTY SURGEON-GENERAL G. G. MAITLAND.

Notwithstanding the trying climate of Aden, with its scanty water-supply, the indifferent rations procurable, unfavourable position of the men's lines, and the heavy duty which was entailed upon them during the hottest months in the year, the general health of this corps has been fair during the period under review. Malarious fever cannot be said to have been prevalent, and the admissions from scurvy few compared with that of other Native regiments quartered at Aden for long periods. 3 years' tour of service at Aden is too long for any Native regiment; a residence of 18 months perhaps would be sufficient; but no corps ought to be kept there longer than 2 years—good drinking water and proper food being essentially necessary for the sepoys, and without which his health and energy will soon succumb. I am of opinion that the regiment should be supplied with the best filters procurable; and as regards rations, potatoes, as suggested by Dr. Peters, ought to form a portion; and to prevent waste, and the pernicious practice complained of, sepoys selling the vegetables when supplied to them in large quantities twice a month, they should be given out every other day. When on my tour in December last, I inspected some of the men of this corps just arrived from Aden, and in all a slight taint of scurvy was perceptible, though not sufficient to prevent them performing their duty.

(In this report no mention of the numbers of treated, castes, &c., of the detachments at Belgaum and Aden, stationed for 1 and 2 months respectively, is made.)

Out-post, Perim.

PERIM.—In medical charge of Assistant Apothecary J. WEBB; Strength, 458.

1. The island is garrisoned by a detachment of 50 men furnished by the Native infantry regiment stationed at Aden, and relieved periodically at the discretion of the Officer Commanding Aden Brigade, generally every two months.

2. The Island of Perim, called in ancient times the Isle of Dioturus, and by the Arabs El Maiyum, is situated in the narrowest part of the Straits of Babel Mandeb, being distant from the Arabian coast $1\frac{1}{2}$ miles and

Topography.

from the African, 10 or 11. Its greatest length is about 5 miles, and its average width about $2\frac{1}{2}$. Its circumference, following the sinuosities of the coast-line, would probably exceed 30 miles. It is of mixed volcanic and coral formation, formed partly by volcanic upheaval and partly by the receding of the sea at some remote period. About one-third of the island consists of plains (formerly sea-beds) formed of a substratum of old conglomerate coral beds covered with about a foot of earth and sand mixed. The plains occur principally on the northern side of the island, and are partly covered with statice or sea-lavender, wild mignonett, salsola, senna, and other plants which grow in salt sandy ground; some coarse grass also grows on the plains and in the water-courses after rain. A curious feature of the hills is that the rocks are nowhere exposed, except when here and there they descend perpendicularly into the sea; they are covered with a layer of volcanic soil from 2 to 6 feet in depth, above which is another layer of loose volcanic boulders and irregular masses of black vesicular lava, in some places so thickly set as to resemble a rude pavement. There are some outcrops of aqueous strata on N.W. side. At the head of a long-shaped bay, which runs from the harbour in a N.W. direction, are the ruins of barracks built by Colonel Murray's Red Sea detachment when Perim was occupied by the British during the Egyptian war in 1799. Near the same spot, and about 150 yards from the beach, are the ruins of a circular masonry tank intended to hold 25,000 gallons. The island consists of long, low, and gradually-sloping ranges of hills, for the most part surrounding the harbour; these have formerly been intersected by bays and indentations which in the course of time have become filled up with coral and sand, and are now conglomerate coral plains covered with sand blown from the beach and a little earth washed down from the hills during rain. The highest point on the island is 209 feet, the base of the fort occupied by the detachment 203 feet above sea-level, and the lighthouse at the northern extremity of the fort is 249 feet at the highest point. The harbour, which faces S.W., has natural advantages which few others possess, being almost surrounded by ranges of hills

Harbour.

averaging about 90 feet in height; it is $1\frac{1}{2}$ miles in length and $1\frac{1}{2}$ in breadth. The entrance to it is 860 yards wide; it affords safe anchorage for ships in all winds.

A rain-water tank capable of containing 36,000 gallons (lately leased to a water contractor)

Rain-water Tank.

becomes filled when rain falls, and the water is issued in lieu of purchased water. Many attempts have been made to find fresh water by digging, but without success. The prevailing winds are N. and N.W. from April or

Winds.

May till September or beginning of October, and E. or S.E. for the remainder of the year. The regular monsoons do not reach this neighbourhood.

3. There is no system of drainage, and none required.

4. The climate is very healthy; and there being generally a strong prevailing wind at the different seasons of the year, the atmosphere is rendered agreeably cool, except in the hot months, when sometimes it is

Climate.

very warm, close, and oppressive.

5. The detachment occupies the fort, which is situated very advantageously, and live

Barracks.

in a series of long low barracks, which are out of repair and very old; they are built on plinths. The accommodation is not sufficient; the ventilation is free, except at N.E. barracks, where windows are much needed. There is no bazaar or neighbouring villages, no system of drainage, and no tanks: all the sanitary arrangements are satisfactory.

6. The water brought from the Arabian coast has been found of a very inferior de-

Water.

scription, and an extra gallon per man per day of condensed water for the use of the detachment has been sanctioned by the Brigadier-General at Aden from May to September; during the remainder of the year water is brought from the neighbourhood of Zeilah, on the African coast, and is of much better description.

7. Canoes from the Arabian coast bring over occasionally

Food.

fowls, fruit, fresh vegetables, and other articles for sale on the is land.

8. The principal admissions have been from fever, scurvy, mumps, dysentery, and simple

Sickness, &c.

contusions. The fever was of intermitent type, and was treated with quinine and cinchonidine with success. There were 3 cases of scurvy admitted into hospital, but an unusual number of cases were treated as outdoor patients, which is attributable to the want of fresh vegetables, the regiment having been

kept in Aden for 3 years. One severe case of dysentery nearly proved fatal owing to the weak constitution of the patient ; the severe attack and a relapse was treated with the usual remedies, and after a prolonged treatment recovered convalescence, and was sent to Aden. The case shown as mumps was severe ; the parotid gland and lymphatics becoming in a short time greatly swollen, hard, and extremely painful, resisted remedies, and after some days suppurated, the patient swallowing with the utmost difficulty, and becoming very weak in consequence. The relieving steamer arriving, the patient was sent to head-quarters hospital at Aden. No casualties have occurred. The general health of all detachments has been satisfactory. Owing to the short stay of each, and the relief of the medical subordinate every four months, no remark can be offered regarding the physique of the men.

9. Three cases of ague were treated with cinchonodine ; the results have been already specially reported.

10. I would draw special attention to remarks made in the annual sanitary report, 1875, regarding scurvy, and would suggest that an arrangement be made for treating this disease, which has been so prevalent, and which has already been the subject of a correspondence, the result of which is unknown.

11. The latrine, reported last year as being erected, is now in use, and is attended to and kept clean by sweepers specially sent from Aden. The excreta is carried in closed receptacles, and buried some feet in the sand to the leeward of the fort. The roofs of all barracks and buildings in the fort are to be removed, and the whole made substantial. The Commanding Officer's quarters have already been re-constructed, and a few additions made.

POONA DIVISION.

Average strength present during the year ... ..	...8,145·9
Average daily sick per cent. to the average strength ...	2·8
Ratio of mortality per cent. to the average strength ...	0·5

H. M.'s 1st Regiment Light Cavalry.

POONA.—In medical charge of Surgeon McALISTER ; Strength, 301·6.

1. The regiment went on the 8th of October to Bombay, where it did duty connected with the visit of H. R. H. the Prince of Wales, and returned to Poona on the 11th December. The 1st Squadron proceeded to Baroda by rail on the 20th January.

2. It is seldom that we have had to record such a succession of wet as fell, more especially during the first three weeks of August last, and which came in such quantities as to cause floods of water to collect in many parts of camp. It was found necessary to run deep surface drains in the direction of the river to relieve the camp of this accumulated water.

3. The natural drainage is by no means what a casual inspection of the situation would lead one to expect. The superficial deposits of soil, with the substratum of moorum intermixed with a small proportion of clay, render percolation down to the laterite very slow ; hence, where the surface drainage is not good, the storm water, after heavy rains like what we had during last wet season, remains in pools for several days. The only chance of escape in certain places for the water which fell in August and September last, was by evaporation. The effect of this condition of the ground upon the healthfulness of the regiment was seen in the prevalence of ague of rather a severe type, and most of the other ailments treated then were complicated with malarial manifestations. At the same time all the European officers, without exception, suffered from a grave form of ague in common with the men. Indeed, one European officer almost succumbed to a severe attack of remittent fever. Then, also, among the families and regimental followers malarial complaints were painfully prevalent, and it was evident that some exciting cause was at work which had not previously existed. That this cause was some telluric emanation assuming miasmatic form and character, is readily conceived. As soon as this state of things was reported to the cantonment authorities, they at once had the then existing drains cleared out and enlarged, and new ones excavated wherever such was considered necessary. The sanitary condition of the ground in and about our camp continues to be most satisfactory ; but it is the unanimous opinion of all who have given the matter consideration that the erection of new syce lines would give the cavalry camp great hygienic advantages.

Conservancy and Sanitary Arrangements.

4. The sanitary administration of the lines was thoroughly maintained throughout the year.

5. At present there are two sources of water-supply in the lines, viz., wells and water-works ; the water from both these sources is pure and abundant. Until within the last twelve months the drinking water of the camp was furnished entirely by two wells. Even at the present time a considerable portion of the water daily used, is obtained from this source, and is issued to the sowars by regimental bheesties. The service of the water-works requires three additional stand-pipes to render it complete. It seems desirable for several reasons to maintain the permanency of the wells, and chiefly in the event of the aqueducts being interrupted and the population reduced to have recourse again to wells for its water-supply. The water from the wells and stand-pipe, so far as can be ascertained by the means at hand, is free from any appreciable amount of organic matter.

- Food, Quality, &c. 6. Succulent fruits and all cereals are abundant and cheap in the Poona bazaars.
7. The present Commanding Officer is attempting, as far as practicable, to improve the dress of the men. Its faults were summed up in my last report.
Clothing.
8. The general duties of the regiment for the past year have been much the same as heretofore, except while in Bombay, when they were rendered more arduous on account of the incessant escort duty required by the civil authorities. Many of the weakly men were thoroughly prostrated by the sultry suffocating heat that prevailed during the first two weeks of our stay there.
Duties, and their Effect on Health.
9. All these quarters continue comfortable and in good repair.
Lock-up Rooms and Cells.
10. On the 8th October 1875 the head-quarters with two squadrons left Poona for Bombay *en route* for Neemuch. Bombay was reached on the 19th idem. The regiment remained in Bombay till the 30th of November following, when, in consequence of the cavalry reliefs for 1875-76 being stopped, it was ordered back to Poona, where it arrived on the 11th December.
Marches.
11. No improvements have been made during the year, nor do we consider any alterations necessary, as the building continues to fulfil the requisite conditions of a good and comfortable hospital for Native troops.
Hospital and its Surroundings.
12. The monthly reports of sick and wounded from this hospital for the past year represent an annual average strength of 301.6, while the whole number taken sick was 310. The average number of daily sick was 8.9. There were no deaths. Six sowars were invalided on surgeon's certificate of disability for further service, and one sowar was discharged with gratuity. Of the whole number taken on sick report, 276 were for disease alone, and 34 were wounds, accidents, and injuries of all kinds. The general sanitary condition of the regiment for the first seven months of the year was of the most favourable character; the various cases of sickness were of a mild nature, and devoid of any special feature of interest. Towards the middle of August, malarial fever, which had up to this time only been met with in a mild form, began gradually to increase, and, notwithstanding the most energetic measures used to confine its limits, it continued to prevail during the remainder of the wet season with a frequency and severity quite unparalleled as compared with former years. The highest rate of sickness from this disease occurred amongst the regimental followers, who reside in the so-called "syce lines"—a district of camp where the social, physical, and hygienic conditions are the very worst imaginable. The disease did not confine itself to the Natives of camp, for it attacked all the European officers then residing in the cavalry lines with extreme intensity. In order to mitigate the sources of disease as much as possible, rigid police measures were enforced, and special attention was given to the use of disinfectants, and the removal of all vegetable matter liable to undergo decomposition. The administration of prophylactics was commenced with the enlisted men, more especially with those who were exposed to night air and wet when on duty as orderlies in various parts of cantonment. An effective surface drainage was reported as necessary, and the cantonment committee at once proceeded with the work, and by means of large surface drains placed the camp in a more thorough sanitary condition than it had been in heretofore. A more perfect system of surface drainage remains to be accomplished by means of permanent stone drains running between the double line of huts so as to carry away the refuse water from rear of the huts. In the treatment of the fever it was frequently necessary to administer a mild mercurial with the view of inducing the liver and intestines to resume their normal functions; afterwards quinine in 10 or 15-grain doses, with a few drops of chlorodyne in solution, three times a day was usually thoroughly efficient. In those cases where quinine, whether administered by the mouth or hypodermically, failed to break up the paroxysms, 2 or 3 considerable doses of calomel, with a few grains of ipecacuanha, was the treatment which gave the most satisfactory results. Of course the mercurial treatment was followed up by tonics in the shape of iron, quinine, and mineral acids. Cinchonodine was used only in those cases where the fever manifestations were not sufficiently severe as to require their admission into hospital. 4 cases among the followers were treated with
Sickness, Mortality, and Invaliding.
Malarial Fever.

chloride of sodium in drachm doses given every hour during the period of intermission, and from the way it broke up the attack in these cases it would seem to be a very reliable anti-periodic. A case assumed the congestive remittent type, and the hypodermic use of quinine was of no avail; the patient improved from the moment quinine to the amount of 20 grains was given per rectum in beef tea. All these cases eventually did well. Cholera has not been met with, although it was prevalent in the surrounding villages during the hot-weather months. Cholera infantum is common here during the hot season, and is often of a severe type. Bromide of potassium seems to be the best remedy for this disease. There was 1 case of scurvy in the month of May. The majority of cases of bronchitis occurred on the line of march to and from Bombay. Bowel-affections have been moderate in number and character. The most prevalent diseases next to fever were those of the cellular and cutaneous system, including boils, ulcers, contusions, and skin diseases. There were 2 cases of fracture of the tibia and fibula—one simple, the other compound; the progress of both was favourable. In the case of the compound fracture, suppuration was entirely prevented by Lister's antiseptic treatment. At this time both men are doing their duty without any feeling of pain or tenderness at the seat of fracture.

Principal Causes of Sickness. 13. The most prevalent cause was malaria. No deaths in hospital. 1 sowar, a Hindu, died while on furlough.

14. Vaccination and re-vaccination were successfully maintained throughout the year.

15. The general health and physique of the men is very good.

REMARKS BY DEPUTY SURGEON-GENERAL G. G. MAITLAND.

To the succession of the wet weather which occurred in August last, and the want of proper drainage in the lines of this regiment, is ascribed the prevalence of fever, both among the officers and men, during the latter part of the year. Immediately the subject was brought to my notice I inspected the lines, and forwarded a report to the General Officer Commanding, who promptly ordered the suggestion I offered for the proper drainage of the camp to be carried out, with the exception of the horse lines. These required masonry drains running down between each row of huts to carry off the surface-water which lodges about the ground on which they are built, rendering them in the monsoon damp and unwholesome. The subject of the insanitary condition of the quarters in which the syces are locted, is again brought to notice by Surgeon McAlister. This matter was reported to the military authorities by me two years ago, but nothing has been done.

H. M.'s 1st Grenadier Regiment N. I.

POONA.—In medical charge of Surgeon-Major C. J. SYLVESTER ; Strength, 629·5.

1. The regiment was stationed at Poona until December, when it left by detachments for Ahmedabad, proceeding by railway to Bombay and Surat, and thence by regulated marches. A detachment was sent to Supa in May for the purpose of suppressing a riot, and was absent for a period of 12 days, during which the men bivouacked in the open air under a thick tope of mango trees without the occurrence of any sickness.

2. Many of the huts have fallen into disrepair owing to defective roofing, the sum of money originally expended upon the lines on the arrival of the regiment at Poona being only sufficient to keep them in good order for the space of three years, and no further grant was made for the additional year during which the regiment was in residence. No change has been made in the conservancy arrangements.

3. The proposition which has been made to bring the Kharakwásla water into the regimental lines has not been carried out, and the nearest point from which it can be obtained is in the immediate vicinity of the

Water and Food.

adjoining regimental lines. The water could be laid on in the lines occupied by the Grenadiers without difficulty, and at little expense, thus rendering these lines independent of the wells now in use, one of which (No. 2) in the left wing has been reported by the Chemical Analyser to contain traces of nitrites and an undue proportion of solid matter. The articles of diet are abundant, and comparatively reasonable in price. The use of green vegetables to a larger extent than at present obtains, would be highly advantageous, and I am of opinion that encouragement should be given the sepoy to cultivate gardens, and thereby secure a more constant supply.

4. The number of nights in bed has been nominally $3\frac{1}{2}$. I believe the actual number has been less than this, owing to the men who are told off for Duties, &c. regimental police and butt guards not being taken into account, and every man on guard at the Yerauda Jail having to be on duty each night. Although the duties have probably exercised no prejudicial effect upon men in good health, I believe many of the weaker sepoy have suffered to a greater or less extent owing to the fatigue and exposure thus entailed; many cases of the ordinary mild form of intermittent fever, together with cases of diarrhoea and dysentery, having been admitted into hospital direct from such guards, and which may fairly be attributed to that cause. A small proportion of the men employed themselves in preparing articles for the "Annual Soldiers' Exhibition". With these exceptions, amusement has been very limited.

5. The regiment, being under orders to proceed to Ahmedabad at the usual season of the annual reliefs, left Poona by railway by detachments for Marches. Surat, which they reached on the morning of the 22nd and 23rd. The regiment then marched on Ahmedabad. The average length of each march was 12 miles. On the 31st December the regiment had reached Etola, within one march of Baroda. The health of the regiment during the march was very good, about 16 being the average number of sick, and these for the most part consisted of cases of shoe-bite, and contusion, and other local injuries, caused by marching; the more serious cases being fever and bronchitis, caused by the extremes of temperature increased by the exposure in tents.

6. The regimental hospital was nearly destroyed by fire on the night of the 1st February. The sick were subsequently accommodated in the Hospital. separate ward situated in the hospital compound, supplemented by an adjacent building formerly used as a band-room; these afforded sufficient space without overcrowding until the beginning of the monsoon, when the increasing number of patients necessitated a removal to the barracks in the Dépôt Lines, where four blocks of buildings were allotted for that purpose. Two of these (each consisting of one large ward) were set apart for the reception of the sick—one as a cook-room, and one as a separate ward for special cases. A temporary latrine was constructed in a suitable position, there being no other available. The accommodation thus afforded, proved ample for all purposes, and the buildings were used as a hospital until the departure of the regiment from Poona, the permanent hospital not having been repaired in time to allow of its re-occupation. The ventilation of the buildings above described, was very good, and was provided for in one of the hospital buildings by doors and windows, there being no roof-ventilation. In the other and larger ward, ventilation was effected by means of doors and windows on each side, and a row of ventilators in the upper part of the wall. No overcrowding has taken place. From the commencement of the monsoon the supply of water has been derived exclusively from the Kharakwásla Canal: there being a standard water-cock erected in the immediate neighbourhood of the Dépôt Lines, permission was obtained to draw water from it for hospital use. The supply thus obtained, has been good and abundant.

7. The number of admissions has amounted to 779, showing an increase of 174 over the previous year; this difference is nearly accounted for by the Sickness, Mortality, and Invaliding. excess of admissions from malarious fever, the number of cases during the past year having amounted to 422 as contrasted with 274 in 1874. The cases have been, with one exception, simple intermittent fever of a mild type. Cinchonidine has had a fair trial. The minimum dose which I have found efficacious has been 10 grains given three times a day; less than that quantity, after frequent trial in different cases, I have found to be inefficient to prevent a return of the febrile attack. In the more severe and obstinate cases I have found it advisable to give quinine. The latter has been given both by mouth and hypodermically. In the latter method, 2 grains have been the ordinary dose, but my experience of it has not been sufficient to enable me to draw any trustworthy conclusion as to the comparative efficiency of the two modes of administration. 28 cases of dysentery and 15 of diarrhoea have been treated; these, almost without exception, have been of a mild form, and occasionally a concomitant of fever. 62 cases of chronic rheumatism have been under treatment. It is needless to say that the treatment of this disease in a Native regimental hospital is highly unsatisfactory; this being one of the affections which is usually simulated by the sepoy when his stipu-

lated period of service having expired, he is naturally desirous of obtaining the pension to which his length of service entitles him. Under existing regulations this coveted result of his labours is only attainable in the event of his being pronounced by a medical committee unfit for further service; his energies are consequently directed to deceive the medical officer, either by feigning disease which he has not, or exaggerating a complaint with which very many sepoys are affected more or less after years of exposure to climatic influences. Under these circumstances it is not surprising that medical treatment is simply useless, the patient having determined to carry his point, and to resist all treatment directed to the cure of his supposed ailment. A repeal of the present pension rules is the only remedy for this evil, which is both unfair to the medical officer and demoralizing to the Native Army. Bronchitis and bronchial catarrh were prevalent during the cold weather, 23 cases having been under treatment; there were also 5 cases of pneumonic phthisis, in 4 of which the patients were invalided. 2 cases of dementia were admitted into hospital, 1 of which terminated in an unfortunate manner. A sepoy and his wife were admitted into hospital, both labouring under the delusion that a conspiracy was on foot to injure them, and that they were bewitched; they were detained for treatment, and were placed under the care of an attendant, and means taken to ensure rest and quiet. Under this they appeared to be gradually recovering. The man at last seemed to be so far recovered that he was on the point of being discharged, when one morning, shortly after my usual visit, both patients, in the absence of the attendant, went into the cook-room adjoining; the man, seizing a large brass cooking-pot, struck his wife several violent blows with it on the head and then ran off at his utmost speed. The woman was found to have had her skull badly fractured, and after lying in an insensible state for some hours expired, previously giving birth to a still-born child. The husband was never found, although diligent search was made for him throughout the district; it was supposed he had thrown himself down a well. The second patient was pronounced by a committee to be unfit for the duties of a soldier and recommended to be discharged the service. Local affections have occurred in 95 cases; many of these were abrasions caused by hard and ill-fitting shoes, degenerating into indolent, ill-conditioned ulcers owing to the patients' health being impoverished by bad and insufficient food; these were frequently very tedious, and in some cases necessitated the removal of the patient for change of air. In some patients this cachectic condition was so pronounced that the application of leeches or a blister was followed by the same result, the leech-bites and vesication becoming converted into sores which required many days and even weeks, and a variety of treatment, both local and constitutional, to heal. One case of fracture of the clavicle, 1 of dislocation of the clavicle from the sterno-clavicular articulation, and 1 of dislocation of the humerus into the axilla. The number of men invalided was 24.

Principal Causes of Sickness. 8. The principal causes of sickness have been malarious fevers, dysentery, and diarrhoea, bronchitis, bronchitic catarrh, and rheumatism.

Principal Causes of Mortality. 9. The 3 fatal cases, all Hindus, resulted from remittent fever, apoplexy, and malignant cholera.

10. Malarious fever was prevalent to an unusual extent during the latter part of the monsoon, and I am of opinion that this was partly due to the long protracted rainfall and to the frequent saturation and partial drying of the ground giving rise to malarious exhalations.

11. Cholera was epidemic in Poona and the neighbourhood in the months of June, July, and August. Only one case occurred amongst the sepoys of the regiment, the patient having been attacked whilst he was on guard at Gunesh Khind; he was in a state of collapse when admitted into the hospital tent; the case terminated fatally. One woman and one child amongst the regimental followers were attacked in the lines, and both died. Every precaution was taken to prevent the sepoys and their families entering the parts of camp, the town, and the bazaar in which cholera prevailed; and the block of huts in which the two cases occurred, was vacated, and thoroughly cleaned, fumigated, and lime-washed, and allowed to remain unoccupied for a month.

12. The total number of cases vaccinated was 74, all of which were successful; the number remaining unprotected at the close of the year was 8 infants—too young to allow of the operation. There have been 24 cases of re-vaccination.

13. The general health and physique of the men, if estimated by the number of admissions into hospital during the year, may be said to be good; but, judged by their appearance on parade and their ability to bear fatigue, and general fitness for hard work, it is not so satisfactory. I have frequently had occasion to notice the cachectic condition of men, who have come to hospital for treatment, and the unfavourable effect such a state of health has exerted upon the ailments for which they have been admitted. I believe this loss of tone and vigour to be

attributable to the following causes :—1st, a residence in Bhuj of three years, during which the regiment suffered severely from fever ; a subsequent removal to Aden, where the regiment was stationed for a period of two years, during which scurvy was very prevalent amongst the men ; from Aden the corps was sent to Belgaum, which in all probability would have exerted a favourable influence upon the exhausted constitutions of the sepoys, had not the fatigue and exposure entailed by line-building counteracted the good effect of the climate. Consequently, when the regiment was removed from Belgaum to Poona in 1871, the men were not in a condition to undergo the fatigue entailed by the many guard and other duties which they have had to perform during the four years they have been quartered at that station. Super-added to the causes I have above enumerated, is another which, in my opinion, is a most important factor in conducing to this weak state and want of physique—I allude to the discrepancy that exists between the pay of the sepoy and the current prices to which all articles of food and consumption have risen since the pay was fixed at its present rate. During the last thirty years prices have increased to the extent of at least 50 per cent., but the sepoy's pay remains the same as it was then. It is, therefore, not a matter of surprise that the sepoy, being now unable to purchase at the former rates, is compelled to buy cheaper and less nourishing food, or to eat a less quantity of that to which he has been accustomed ; this is more particularly the case with men having large families or a number of poor relations to support, and to this cause I believe may be attributed much of the deterioration to which I refer. Line-building, which under favourable circumstances should be an element of health, and conduce to the physique of the sepoy, is under present circumstances an active agent in producing the opposite effect. Increased labour and exposure require at all times an increase of food, and, unless this can be obtained, the result is to weaken and enfeeble the frame. Extra or working pay should, therefore, in my opinion, be given in all cases where line-building is carried on, to enable the men to purchase a sufficiency of good and nourishing food to supply the loss which is created by the nature and amount of extra work which they are called upon to perform.

14. Care has been taken during the year to impart instruction to the medical subordinates, chiefly by practical teaching in hospital, the keeping of cases, applications of bandages, and the treatment of ordinary diseases. The medical pupil has been regularly instructed in English three times a week, also in elementary anatomy and the uses and doses of medicines.

REMARKS BY DEPUTY SURGEON-GENERAL D. WYLLIE, M.D.

The regiment was stationed at Poona till towards the close of December, and practically only entered the Northern Division on 1st January, the date of arrival at Baroda.

Health was fairly satisfactory, but less so than in previous year.

Owing to the hospital having been destroyed by fire on 1st February, the accommodation for sick was of a provisional character ; but it is noted by the medical officer that there was ample room throughout, with a cubage of 1,252 feet for each patient. Vaccination was carried out systematically.

H. M.'s 8th Regiment N. I.

POONA.—In medical charge of Surgeon-Major E. SEXTON, M.D. ; Strength, 690.

Location and Movement of Corps. 1. The regiment was employed in the construction of new lines during the whole year.

2. The Kharakwála water-works are being gradually extended, and a new reservoir, now in course of construction near the Wanowri barracks, will, it is supposed, supply the whole of the southern end of the cantonment. No improvement has taken place in this respect ; several open sewers in the Sudder Bazaar constitute a dangerous and most offensive nuisance. A case of typhoid fever which occurred in the neighbourhood, was distinctly traceable to this cause. The condition of the Mussulman and Portuguese cemeteries on the Sachapeer road remains exactly as described in my report for last year.

3. New lines are being constructed on the western edge of the elevated plateau forming the military parade-ground ; the works are being rapidly pushed forward, and it is hoped that buildings sufficient to accommodate five companies will be finished by next rains. They, being situated on an elevated ridge, will be better ventilated than those now occupied by the regiment. This is well looked after, and no complaints have been made with reference to its administration. There are no villages in proximity to the new lines or to those now in occupation. The new lines are well raised, and the ground to the westward, sloping away to a pretty deep nullah, favours the natural drainage, which, so far as I can see, will be all that can be desired.

4. They are efficiently carried out. The latrines afford ample accommodation, additional space having been provided since last year; they are well covered in, and not situated too far from the lines—proximity affording the most effectual safeguard against the use of private privies.

5. The water in the well was examined some time ago and pronounced unfit for drinking purposes; and no doubt its proximity to the latrines favours the chance of pollution. The troops are forbidden to use the well for drinking purposes; but, notwithstanding this prohibition, I have reason to believe that many do drink the water, and without, so far as I am aware, any bad result. As regards the Kharakwāsla supply, it is obvious that, flowing for several miles through an open canal, it must be liable to contamination from various sources of impurity. Another objectionable feature, is the close proximity of the European cemetery. It is no doubt represented that the level of the canal is somewhat above that of the cemetery; but, however that may be, and howsoever slight the risk of percolation, it must be agreed that the vicinity of a burial-ground to the principal source of water-supply for the wants of a large population, is disagreeable by its obvious associations, and objectionable on the ground of its possible risks.

Food.

6. The food supplies last year were generally abundant, of fairly good quality, and average price.

Clothing.

7. I have little to say in this regard. I am, I believe, well within the mark in stating that three-fourths of the admissions into hospital under the head of "contusions" are caused by badly-made and ill-fitting boots; and it is a well-known fact that the first impulse of the Native soldier on the march is to divest himself of the very articles designed especially to cover and protect his feet. The difficulty might, in my opinion, be solved by providing the troops with soft, pliant, well-dressed English leather; and I see no practical reason why boots of such a description should not be made up at the Government Clothing Establishment, and issued to the men at a fixed and reasonable price.

Duties.

8. There has been a decided falling off in the general health and efficiency of the sepoys of this regiment during the past twelve months, and I have little hesitation in ascribing it to the hard work, fatigue, and exposure, necessitated by the rapid construction of the new regimental lines. The falling off has been pretty general throughout the year, but seems more marked during the last six months; and it is evident that exposure and fatigue, unless accompanied by an improved dietary, must have an appreciable effect in lowering the standard of general health in the Native soldier. Brick and tile-making, digging foundations, and more especially quarrying, represent various forms of very hard work; and when it is remembered that such work is carried on for eight hours every day continuously, and the men have their ordinary guards and night duties to perform in addition, it will be conceded that, unless the waste occasioned by such wear and tear be supplied by good, wholesome, nutritious food, the effect on over-taxed frames and enfeebled constitutions must soon become apparent. These views accord precisely with the results of last year's experience. The Purdasees and sepoys generally from the other side of India, who, as a rule, have no family ties, and can afford to live well, did not exhibit any deviation from their usual standard of health; whereas precisely an opposite condition prevailed among the Mahrattas, especially those coming from the Konkan, who usually have large families, and who, moreover, are habitually victimized by relations who regularly come at frequent intervals to prey upon the sepoy's overburdened resources. For the foregoing reasons I think a small addition might be made to the sepoy's monthly income in the shape of working pay, and the result would, in my opinion, be in every way encouraging, and would not only enable the hard-working sepoy to provide himself with a better ration, and enable him the better to bear the unusual strain on his vital forces, but it would also act as a direct incentive to the honest and industrious, discourage malingerers, and by the promise of a fair day's pay for a fair day's work do much to improve the tone and condition of the regiment.

Hospital.

9. The hospital buildings form a right angle with a row of small houses allotted to ordnance conductors, magazine serjeants, &c., and their families—a very ill-advised arrangement, and a constant source of complaint on the part of the European occupants of the dwellings above mentioned. The hospital has been condemned more than once, but, so far as I can see, the only tangible ground of objection is to be found in the near neighbourhood of Europeans and their families. No inconvenience was felt in regard to overcrowding; each patient, even when confined to bed, enjoyed an ample, well-ventilated air space. There is neither a dead-house nor a contagious ward. In the early part of last year a committee was appointed to fix a site for

the construction of a contagious ward; after some deliberation an eligible one was at length fixed on with the sanction of the Major-General commanding the station, and the construction of a building was actually commenced; but after a short time the work was suddenly stopped, and has not since been resumed. No change has been made since last year in the position or number of the latrines. I adverted last year to the want of a tiled gutter to carry off the liquid portion of the nightsoil; this want has not yet been supplied. The additional filth-cart I also recommended, has been given, and there are now two calls made regularly every day. Kharakwásla water is now supplied to the hospital; it is chiefly obtained from a stand-pipe recently erected close by for the accommodation of the European community living in the neighbourhood. Occasionally the hospital bheesties fetch water from the tanks in the lines, or from the staff hospital situated close at hand, where pipe-water is laid on; but in every case the water, however obtained, is supplied from the same source, and no other is ever used.

10. The total number of cases of disease treated in hospital was 1,410, of which 1,381 were admitted during the year. The total number discharged was 1,382, viz. 1,366 to duty and 16 otherwise; and the total number of deaths, 2. Sixteen convalescents were sent to their homes for change of air. These figures show a considerable increase of sickness as compared with the return for 1874. During the latter year the total number of admissions into hospital were 619, or 970·22 per 1,000; whereas in the year now under review the admissions stand at 1,381, or 2,001·44 per 1,000 of strength. Notwithstanding the great increase in sickness last year, and that the number of admissions into hospital increased to more than double that of 1874, it is a noteworthy fact that the number of deaths—2—was exactly the same in each year: thus, while the mortality per 1,000 of treated was 3·23 in 1874, it fell to 1·44 in 1875—a rate of mortality exceptionally low. The following statement shows the admissions, deaths, and rates of mortality for the last three years:—

	1873.	1874.	1875.
Average strength of regiment	650	561	690
Number of admissions into hospital	853	619	1,381
Number of deaths	1	2	2
Ratio of mortality at per thousand of strength ...	1·54	3·56	2·89
Ratio of mortality at per thousand of treated ...	1·13	3·23	1·44

Only 2 deaths took place in hospital—one the result of long-standing heart-disease, the other from malignant cholera. 1 death by suicide occurred in the lines. 32 men were invalided

11. Of the total number of cases, ague gives 503 admissions. The cases were most numerous in the hot months, 64 having been in April; and the causes of this increase I ascribe not only to the high temperature prevailing during the hot months of 1875, but also to exposure and want of rest. Some relief was afforded by a reduction in the amount of night duty; but I think something more might be done in this way, for it is evident that men who work hard for eight or nine hours every day ought not to be called upon to take their regular turn of night duty. Of acute rheumatism only 3 cases were admitted. Chronic rheumatism was a more frequent form of illness; but as this and lumbago are the pet diseases of malingerers and pension-seekers it would not be profitable to draw any inferences from the returns on this point. Only 5 cases of primary syphilis came under observation during the year; this I attribute partly to the little leisure enjoyed by the men, and undoubtedly credit must also be given to increased efficiency in carrying out the provisions of the Contagious Diseases Act. Syphilis in its secondary form was the cause of 39 admissions. Of eye-diseases there were 26 cases of conjunctivitis; 1 of iritis; and 3 of pterygium, which essentially consists of a peculiar alteration of the conjunctiva, and seems to have some affinity to the so-called cheloid tumour of the skin. Diseases of the respiratory system are always most frequent during the cold weather and in the rains. Of these there were 116 cases of common catarrh. Of bronchitis alone there were 20 cases; 10 of asthma, several being cases of re-admission; 4 of pneumonia; and 10 of pleurisy. Of diseases connected with the digestive function, there were 22 cases of dyspepsia, generally the result of over-eating and of intestinal disorders; 13

cases of dysentery, mostly of a mild type; 18 of simple diarrhoea; and 15 of colic, usually the effect of imperfect digestion and assimilation, were admitted. 3 cases of fistula in ano and one of hæmorrhoids were successfully operated on, and the patients discharged cured. Gonorrhoea and its complications do not figure very largely in the returns. 10 cases under the head of "ulcer" and 25 under "boil" were admitted; nearly the whole of the former were the result of injuries sustained by badly-fitting and ill-made boots. Under the head of injuries will be found the unusually large number of 341, the great majority of which were accidental, arising during the construction of the lines. A good many took place in the quarry by the men getting their legs, feet, and toes crushed under heavy stones, &c., and a considerable number on the tramway connecting the quarry with the lines. Latterly there has been a considerable falling off in the number of accidental injuries; and as the men become more habituated to their work, the number will, I have little doubt, be further diminished.

12. Only 2 deaths occurred in hospital—1 from cholera and the other from heart-disease of long standing. 1 death by suicide has already been mentioned. Of the 2 fatal cases in hospital, one was a Mahratta, the other a Hindustani.

13. Cholera in an epidemic form prevailed all over the Poona district during May, June, and July. In this regiment 2 cases occurred on the same day; both men had been to the native city on the occasion of a festival, and had there partaken freely of food and drink.

14. Vaccination has been most carefully attended to under my personal supervision, and inspected eight days after each operation.

15. The remarks made on this point in my last annual report are so far pertinent that I see no reason to modify them in any way.

16. The principal feature in regard to special treatment during the past year was the substitution of cinchonidine for quinine in the treatment of paludal fevers. It may here be noted that no quinine has been used in the treatment of intermittent fevers for the last six months; the experience now gained leaves no room to doubt that the sulphate of cinchonidine is of undoubted efficacy, and may be thoroughly relied on when given in doses of double the strength of quinine. I confess, however, to some doubts as to whether there is not a greater liability to relapse after the cinchonidine treatment. It is to be hoped that with further experience it will be possible to pronounce a more definitive opinion upon a subject of such manifest importance. The only other fact I have to bring to notice with reference to special treatment was the successful application of continuous and induced currents in the treatment of neuralgia, hemiplegia, sciatica, rheumatic stiffness dependent on diminished innervation, and, indeed, in every form of neurosis. The currents were obtained from one of Mayer and Meltzer's combined batteries which contains 20 cells, though it was seldom necessary to use more than from 12 to 16 at one time. The success of the application of faradic currents in a long-standing case of chorea was most marked; the patient—a delicate lad of 14—making a complete recovery after half-a-dozen applications of the battery. The antiseptic mode of treatment, described at length in my last annual report, has been carried out in its integrity during the past year, and with results in every way most satisfactory. In the treatment of small-pox more specially the application of solutions of carbolic acid in glycerine and in rectified spirit seems to have a soothing effect, for which patients invariably express their gratitude; and, moreover, it would appear that the antiseptic influence is not less marked on the secondary fever resulting from the absorption of putrid matter from the pustules.

17. Clinical instruction and formal lectures on surgical anatomy were given once a week during the early part of the year.

REMARKS BY DEPUTY SURGEON-GENERAL G. G. MAITLAND.

There has been a decided falling off in the general health and efficiency of this corps during the past 12 months, and the medical officer attributes this to the hard work and great fatigue and exposure to which the men have been subjected in building new lines. These causes, together with an insufficiency of good food, it is stated, helped to lower the standard of the general health of the regiment, and been productive of the high ratio of sickness shown by the returns. To this it may be said that other corps, such as the 1st Grenadiers, the 5th, and very lately the 12th Regiment; have built new lines; and as regards exposure,

manual labour, night guards, &c., were placed exactly in the same position as that of the 8th Regiment; yet the general health of these corps remained very good throughout. This leads me to believe that climate has had a great deal to do with the sickness at Poona. Even the Sappers stationed at Kirkee—a corps trained to hard manual labour, such as throwing up field-works, &c.—appear not to have maintained that standard of health which they have done since the completion of their lines in May last. Apart from this, I concur in thinking that all regiments when employed in building lines should receive extra pay, in order that the men might be able to procure a larger and better supply of food, and they should be exempt from night guards.

Surgeon-Major Sexton strongly insists on the necessity of a ward for contagious diseases. A temporary building should have been built for this hospital, but the same and even greater difficulties occurred in selecting a proper site as was experienced in finding ground on which to pitch tents. A site in the staff hospital compound was selected by the committee, but strongly objected to by the General Commanding, who eventually chose a spot on the regimental parade-ground, and gave orders to have a building erected; but the work was stopped, as it turned out the site fixed on had already been taken up for the Adjutant General's new office.

To every hospital should be attached a separate ward for ophthalmic and other cases requiring segregation; but I consider substantial grass-huts erected on permanent stone plinths the best kind of hospital in which to treat cholera and small-pox patients.

H. M.'s 17th Regiment No. I.

POONA.—In medical charge of Surgeon-Major G. BROWN; Strength, 658·5.

1. The regiment has been located at Poona during the year; in course of relief it proceeded by rail to Surat on the 22nd of December 1875, arriving on the 23rd. My report will, therefore, have reference to Poona only. Detachments have been provided for the following places, viz., Bassein, Karkála, Murbád, Kalyán, Karjat, Sháhápur, and Bhiwandi.
2. The topography and physical geography of Poona combine to render the climate superior to most stations in India; it is a climate, however, that requires care for those liable to hepatic or dysenteric disorders.
3. The water-supply of Poona obtained from the Kharak-wásla Canal is most excellent, and it is hoped the canal may be kept free from pollution.
4. The Poona market is well supplied, and food of an average price. I would recommend, in addition to the present uniform, a light, scarlet serge, loose-fitting tunic for hot weather, with trowsers of corresponding light material. The boots to be of stout canvas bound and strapped with leather; these could be blacked and polished like leather, and would look and wear well. The sepoy wears no socks, and hence I believe the canvas boot would be cool, and give readily to the shape of his foot: thus blisters and abrasions would be avoided.
5. The duties at Poona are heavy. The average number of consecutive nights in bed was 3. There is nothing organized in the way of amusement.
6. Appear suitable and well ventilated.
7. On occasion of large field-parades the troops frequently march out some distance; there have been many such during the present year.
8. The latrines of the hospital are bad; the floors are mud—very uneven, water is apt to lodge, and great care is required to keep them clean. Water is now conveyed into the hospital compound from the canal.
9. The average strength of the regiment has been 658·5.

	1875.	1874.
Daily average number of sick ...	22·8	18·7
Admissions to strength ...	120·2	87·3
Treated to strength ...	122·9	
Deaths to treated ...	0·4	
Deaths to strength ...	0·4	
Invalided ...	16	

3 deaths in hospital—1 pneumonia, 1 debility consequent on a severe attack of remittent fever with enteric complication, 1 acute atrophy. 4 deaths out of hospital—1 at Karkála from cholera, 1 suddenly in the lines from old-standing lung disease, 1 suddenly from heart-disease, 1 shot himself. 16 were invalided, 3 discharged with gratuity, 1 by special invaliding committee, 1 dismissed by sentence of court-martial, and 5 as absent without leave.

10. Ague has been for the most part of a mild nature; re-admissions were, however, frequent, and large spleen common. Remittent fever 16, many of a very severe type, with cerebral, enteric, and chest complications. 1 severe case of cerebral complication recovered, but with imbecility of mind was discharged the service by special invaliding committee, and one of the cases which afforded decided enteric symptoms lived for some time after the subjugation of the fever. The chest complications were principally of a bronchitic and pneumonic character; these soon recovered under the use of large doses of quinine, counter-irritants, and saline or supporting treatment according to the case. In a Native hospital one frequently meets with cases of pneumonia, pleuro-pneumonia, capillary bronchitis, and acute bronchitis, where the accompanying fever runs high, but almost invariably is remittent in type; it is difficult to determine whether these cases are of idiopathic origin,—viz., from exposure to cold or wet—or are mere complications of remittent fever. The diagnosis is, however, immaterial as regards treatment, for all these cases yield to large doses of quinine. In the treatment of ague and remittent fever, cinchonidine has been used in grs. x and grs. xv doses, but I found it of decided use only in mild cases of ague. In remittent fever I found it check but not cure the disease; and in these cases, when recourse was had to quinine in grs. x. doses, the effect was almost immediate and conclusive. Many of the cases of remittent fever would not, however, yield until quinine was used hypodermically, which was invariably successful: grs. ii was the quantity injected twice a day. I adopted the recipe of Dr. Nolan, and never found sloughing or ulceration follow. The prescription is—℞: quinine disulph, ʒss.; acid tartaric, grs. xv.; aqua distillat. ʒss. 15 minims contain about grs. ii. of quinine. There were 34 admissions from dysentery, many of them sharp in their nature, but not of the very acute kind with high fever. In some of the cases I was obliged to have recourse to large doses of ipecacuanha, but I never used more than a scruple; but I am not sure that, on the whole, this treatment is suited to the Native constitution. Of pneumonia 1 case only ended fatally. Bronchitis, 22.—For this disease I find bark and ammonia the most useful treatment. Rheumatism 51, and lumbago 30. As these are the class of diseases generally simulated by candidates for pension I am bound to say I think half of them, at least, dubious. 13 admissions from guineaworm,—not, however, all contracted at Poona: many of the men returned from the Konkan, from furlough, showed symptoms of this disease. Most of the 49 ulcers were shoe-bites. Syphilis, excluding gonorrhœa, 12 cases—not many for a large station like Poona.

11. The following table will show the mortality for the year, the ratio per cent. according to caste as compared with the year 1874:—

	Christians.				Hindus.		Mussulmans.		Jews.		Total.	
	European.		Native.		Strength.	Ratio of Deaths to Strength per Cent.	Strength.	Ratio of Deaths to Strength per Cent.	Strength.	Ratio of Deaths to Strength per Cent.	Strength.	Ratio of Deaths to Strength per Cent.
	Strength.	Ratio of Deaths to Strength per Cent.	Strength.	Ratio of Deaths to Strength per Cent.								
1874 ...	7	...	8	...	644	0·7	37	...	3	...	699	0·7
1875 ...	7	...	10	...	627	0·3	32	3·1	4	...	680	0·1

In hospital 2 Hindus and 1 Mussulman, and 4 Hindus died out of it. 16 Hindus were invalided.

12. The total amount of rainfall registered for the year was 28 inches 90 cents, which is somewhat above the average. As regards its influence on disease there is nothing very striking to record. The greatest number of admissions from ague took place in August and September, viz., 73 in each month. The greatest number of admissions from dysentery took place in July and August—6 in the former and 7 in the latter. The rainfall for those months was—in July 11 inches 91 cents, August 4·82, September 5·81. The amount registered in July was the largest amount recorded in any one month, but it does not appear to have made any very marked difference as regards admissions from ague or dysentery.

Influence of Rainfall.

Temperature.

13. The maximum temperature during the year was 104° F., the minimum 51°, and the mean about 77°.

14. Cholera has raged in and around Poona, but the 17th N. I. has escaped in a wonderful manner. One case under the head of choleraic diarrhœa was treated in hospital. Every precaution was, of course, taken; but when it is considered that the regiment furnished the guard at

Epidemics.

Yerauda and guards in the city during the prevalence of the epidemic, it seems marvellous that more cases were not admitted.

15. Vaccination and re-vaccination have been successfully carried on: the lymph has been remarkably good.

16. The general health of the men of this regiment is fair. They are not a fine body of men; but, considering how much of their time has been spent in Guzerat, they are in very fair health and condition.

Resumé of the whole,

17. On the whole, during a very unhealthy cholera year, the 17th N. I. has been most fortunate, no unusual sickness having occurred, and mortality low.

18. One medical pupil joined the Grant Medical College in November; prior to this his education was well looked after.

Sappers and Miners.

KIRKEE.—In medical charge of Surgeon-Major STRAKER; Strength, 488·5.

1. The corps has been located partly in their old lines near the Kirkee bazaar and partly in the new. Two companies went over to these lines in July 1874, another followed in April 1875, and the fourth in May 1875, and the old lines were finally vacated.

2. Though the camp boundaries have been extended so as to bring the new lines, for military purposes, into cantonment limits, they belong properly neither to Kirkee nor Poona, being situated about half way between Holkar's and the FitzGerald bridges, in a triangular space, the apex of

New Lines.

which is at Kolkar's bridge, formed by the two roads which run from that bridge, the one most southerly to the FitzGerald bridge and the village of New Kirkee, the other to the north by the Yerauda Jail towards Loonee, being the Nagar road. The base of the triangle is a line joining these two roads, which have gradually diverged from each other to about 1,500 yards and running by the side of the Deccan College. The lines of huts occupy the middle of the northern side of this triangle, facing south and closely bordering the Nagare road, a little to the north of which again the River Mula runs from east to west, bending down again towards the south after it has passed under Holkar's bridge, and thus being on the north and on the west of the lines, though its distance on the north is only about 250 yards, while on the west it is 435 yards off, the intervening space being at present the regimental parade-ground. The new lines occupy a space of 680 feet by about 480, or 326,400 square feet; they run almost directly east and west in four lines, each line being divided into four blocks, two blocks to a company, each block containing 24 huts, 12 facing to the south or front and 12 to the north or rear. Thus each line consists of 96 huts, and the total number of huts is 384. The Native officers' huts are in rear of all, 8 in number. The spaces between the lines from north to south are about 60 feet; but the central road between the two northern and the two southern lines is 90 feet in breadth. The spaces in the other direction,—that is, from east to west—are about 30 feet wide, except the most western, which is 60 feet, and leads up to the quarter-guard. The dimensions of each block are about 140 feet \times 40, by a mean height of 13 feet, and each hut is 11' \times 9' \times 13', giving a cubic space of 1,287 and area of 99, or, including the verandah, a cubic space of 1,778. The Native non-commissioned officers' houses are larger, being 11' \times 11' \times 13', or 1,573 cubic feet, or, including the front and side verandahs, 3,143 cubic feet. The Native officers' houses are

differently planned; and they thus afford a cubic space of about 34,537 feet and an area of 2,659 feet. The mean level of the ground along the left flank, taking the surface of the river when ordinarily full as 0, is 14.07 feet, which on the right is about a foot higher, being 15.14; the ground sinks considerably from the front to the rear, or from south to north, and naturally so, as it leads in this direction to the river. Thus about 100 feet in front of the quarter-guard or about 260 from the front line of huts, the level is 22.59; while about 150 feet behind the Native officers' houses, or about 200 from the rear line of huts, it is 10.27. About 140 feet in front of the second right-flank block is the quarter-guard, having the Native school-room on its right and the cells on its left. These are all well-built, substantial edifices, on well-raised plinths, and having each a stone floor. The size of these is as follows:—

- (a) Quarter-guards.
- (b) Guard-room, $36 \times 16 \times 14$, giving cubic space of 8,064 and an area of 576 square feet.
- (c) Lock-up room, in which prisoners are usually kept, $18 \times 16 \times 14$, giving a cubic space of 4,312 feet, and an area of 308 square feet.
- (d) The cells are each $10 \times 10 \times 12$ feet, which gives 1,200 cubic feet and 100 square feet. Attached to each cell is a small privy of excellent construction.

Ventilation. 3. The arrangements for ventilating all these buildings appear to be of a very excellent kind, while that for the huts is by the tiled roof only.

4. The average number occupying these has been, since May 1875, about 358.62; but as many of the huts have only 1 or 2 occupants, while others have 6, 7, or even at times 9, this does not give a correct idea of the cubic space and area enjoyed by each. About 3 or 4 huts per company seem generally to be overcrowded from the presence of relatives and friends; but this is always brought to the notice of the Commanding Officer, and measures taken to prevent it.

Bazaar. 5. No bazaar, properly so called, has yet been built near the new lines, but a few dealers have set up some small temporary buildings in the vicinity and supply a few things; but the men, for the most part, still go to the Kirkee bazaar, or even go into the city of Poona, which is now much more accessible to them by taking the ferry across the river near the Sungum. The villages near the new lines are—New Kirkee, about $\frac{1}{2}$ mile; Kukus and Wadder, 1 mile; Dugee, Dhonodee, and Bhosree, 2 miles.

Drainage. 6. The drainage is surface, which, from the rapid fall of the ground to the north towards the river and from the nature of the ground which is very rocky, is very effective.

Conservancy. 7. The conservancy for the new lines is that utterly bad and abominable system of a trench latrine in a field to the north-east of the lines distant at its nearest point about 300 yards, and at its furthest about 500 yards from the left flank. In the rains this field becomes almost a lake, and the drainage of it is almost directly into the river, about 200 yards above the spot, whence all the drinking water for the lines is drawn. In the dry season the condition of things is a little less intolerable; but, even at its best, I consider it a barbarous make-shift; and I have month after month in my sanitary report expressed my objection to it, but without any avail.

Water-supply. 8. The water-supply is entirely from the river, and cannot but be very impure, considering the villages on its banks, their inhabitants, and their habits. Besides this source of impurity there is the drainago from the field above described; and there is a sand-bank, almost exactly opposite the point where our men take their drinking water, and which, having been let out to a Native for the cultivation of melons and cucumbers, was manured by him with human excrement. This was to be stopped in future by the Assistant Cantonment Magistrate, should the man's legal rights not render it inconvenient to forbid it. But I am glad to be able to add that before very long the Kharakwāsla water, which has already reached the Yerauda Jail, will be laid on, and there will be no more ne-

Kharakwāsla Water.

cessity to report on impure water-supply, if only the canal, which conveys this water into Poona be kept free from pollution.

Food.

9. The food has been abundant and fairly cheap.

10. The clothing of the Sappers was fully described by Dr. Davey last year, but I would add that the addition of a gaiter to their working dress is very urgently needed. The knickerbockers come to the knee, and

Clothing.

from that to the edge of the Bluchers there is no covering.

11. The duties for the greater part of the year were line-building, and have not had, as far as I can judge, any injurious effect, but they have doubtless contributed to swell the number of admissions under the head of "injuries", which, however, show a total of less than half what they were last year. I think that a wrestling ground or talimkhana would be a great addition to the new lines.

Duties ; their Effect on Health not injurious.

Exercise, Amusement, and Occupation.

12. The new hospital, though good in many respects, is, I very much regret to say, a great disappointment to me. It consists principally of two

Hospital.

single wards, with opposite doors and windows, communicating with each other by an arch, on a well-raised plinth surrounded by a verandah, at each corner of which is a little room, one of which has to be used as a dispensary, a second as a writing-room, a third as a small separate ward for eye-cases or any others requiring segregation, and the fourth as a store-room ; but with the exception of the writing-room none of these are either large enough or well fitted for the purpose. The dimensions of the wards are $45\frac{1}{2} \times 25 \times 18\frac{6}{10}$, or an area of 910 feet, and cubic space of 16,835, giving to each bed, when there is the proper number of beds in each ward, an area of nearly 57 feet and a cubic space of 1,052 feet ; but with the number of beds in the plan (two beds being put, contrary to all sanitary laws, in one wall-space), each patient would only have about $32\frac{1}{2}$ square feet and 601 cubic feet—obviously a mistake, so that the wards are only capable of holding 16 beds, which I consider not enough for the occasional high numbers that have to be treated. The building is well situated, with open spaces on all sides, and facing a little to the north of east, but it has a mud-floor.

Ventilation is well provided for by the opposite doors and windows, and when these

Ventilation.

have to be closed, by the semi-circular revolving fan-lights over each window, and by a Howard ventilator running along the ridge. For the above reasons it has happened occasionally that

Overcrowding.

the hospital was overcrowded, but not for any long period. Attached to each rear corner of this building, by a covered passage running from the rear verandah on each side, are two washing-rooms, and a privy built on the usual plan. Each privy contains three receptacles for dammed iron pans. To the right flank of the hospital are the subordinates' quarters ; these will not be sufficient for all when the whole regiment shall have moved over to occupy the new lines, and it is complained to me by the occupants that the quarters are small, and that there is no place whatever for them or their families to bathe. If there were a back verandah, it would have been sufficient to make up for this want. Behind these are their cook-houses and privies, and still more to the rear a row of 8 small houses for the hospital servants, which seem very good for that purpose. To the left rear is the cook-room for the patients. It was a sort of shed, with only a half wall (half both as to height and breadth) facing the point whence the rain and prevailing winds come. It has, however, been latterly altered, so as to make it possible to cook in. Still further to the rear of this is an excellent

Dead-house.

dead-house : the only defect in it at all is that the door has been unfortunately placed on the side nearest the road, which might as well have been avoided.

Principal Defects of Hospital.

13. The principal defects are—

- (a.) The want of a hospital for Europeans.
- (b.) The want of any quarters for the apothecary.
- (c.) The mud-floor.
- (d.) The want of a contagion-ward, or any ward for eye-cases.
- (e.) The want of a wall round the premises to prevent the entrance of people who have no business there, or the exit of patients.

The contagion-ward is to be built, I believe ; but the ablution-room has not even been marked out yet.

Conservancy.

The conservancy is the usual one of the excreta being removed twice a day in receptacles, and the 2 hospital sweepers taking it to the trench latrine.

Water-supply. The water-supply is the same as that of the lines—from the river.

14. The amount of sickness has been less as compared to last year, for with an average daily strength of 488 to 397 during last year, the average daily sick has been 9·2 to 7·9, and the percentage of treated to strength 58·8 to 88·1, or about 29 per cent. less. The deaths have, however, been greater, namely, 4 to 1 during 1874, or a ratio percentage of deaths to strength of 0·8; and of deaths to treated of 1·3 as compared to 0·3 and 0·3 of 1874. The number of men invalided was 6 out of 8 men sent up. There were about 50 more who offered themselves at the regimental committee, all men of 15 years' service and more; they consider that as the normal period for service, and, unless there is a prospect of promotion, they then make every effort to get away.

15. The principal causes are—climate and malaria, which cause all the admissions in Sub-divisions A and B of the general diseases, amounting to 157 out of a total of 281, or more than two-thirds; skin diseases (31), which include boils and ulcers, and are due partly to bad feeding, partly to want of cleanliness; injuries (25) which, as usual, are nearly all of the lower extremity incurred on works, and, therefore, are nearly all preventible by proper covering for the leg and feet.

16. The chief cause of the greater mortality was cholera, which gave 3 deaths, and 1 ensued from paralysis. The former were in June and July, when there was no epidemic, but there were scattered cases in the bazaar and cantonment ganerally. The accompanying table gives the mortality according to race, and also the comparative average strength and admissions by castes :—

			Average Daily Sick.		Average Daily Strength per Cent. during year.		Admitted during year.		Died in Hospital.		Died out of Hospital.		Christians.				Hindus.		Mussulmans.		Others.			
													European.		Natives.									
													Average Strength.	Admissions.	Average Strength.	Admissions.								
1874	...	...	7·9	397	344	1	1	11	1	1	1	334	296	62	47	...	...					
1875	...	...	9·2	488	281	4	...	10	10	1	1	417	247	68	33	2	...					

The following table shows the mortality for the year ; its ratio to average strength according to caste as compared to last year :—

		Christians.				Hindus.		Mussulmans.		Others.		Total.	
		European.		Natives.									
		Average Strength.	Ratio of Deaths to Average Strength per Cent.	Average Strength.	Ratio of Deaths to Average Strength per Cent.								
1874	...	11	...	1	...	334	0·3	62	...	...	...	408	0·3
1875	...	10	...	1	...	417	0·8	68	...	2	...	488	0·8

The number invalided during the year, as compared with 1874, is shown in the next table:—

	Hindus.		Mussulmans.		Others.	
	Average Strength.	Invalided.	Average Strength.	Invalided.	Average Strength.	Invalided.
1874	334	5	62	...	...	...
1875	417	6	68	...	2	...

Influence of Rainfall.

17. There was no special influence in the rainfall, which, like last year, was considerably above the average, except perhaps in a few cases of dysentery, which were not severe. There was no epidemic, but there were a few cases of cholera.

Epidemics.

18. Vaccination has been carried on as assiduously as possible, but there have been a good many failures, partly from irregularity of the vaccinator in attendance, and partly, I think, from the inferior lymph

Vaccination.

he used. One child was vaccinated four times unsuccessfully, and finally had to go with its parents to Aden unprotected. The total number of cases vaccinated during the year were 87, out of which 81 were successful.

General Health.

19. The general health of the men seems fairly good. Their physique is fairly so, and seems to be good enough for the work the men do.

20. There has been no special treatment of disease, except in the cholera cases, which

Treatment of Disease when special.

at first I treated by the hypodermic injection of chloral hydrate, exactly as directed by Dr. Hall. From my experience of a few cases I cannot help thinking that it is really more injurious than anything else; so strong was this impression that I had to give up the use of it.

21. As special observations I can only reiterate my recommendations as to the improvement of my new hospital over the river; the necessity for some strong protective covering for the men's feet and legs

Special Observations.

while they are employed at works; and the adoption, for Natives, of the medical-history sheets, which are of such excellent use with Europeans.

22. I take leave to add here a statement sent me by Captain Cruickshank, at present in command, giving details as to the structure of the new huts for the men, and specially of the system of tiling, which, I believe, is new in this Presidency though it is used in Bengal:—"The roof may be described as a frame-work of sawn timber throughout, the portion over each hut being carried by two principal rafters, which are strengthened by stents abutting on corbel stones let into the centre longitudinal wall. Over the principal rafters are 7 purlins, and over these again inch-battens are fixed at central intervals of 7 and 5 inches alternately to carry the tiles. Two kinds of tiles are used: first of all, on the 7-inch intervals are laid the flat tiles which are 13 inches long, 12 inches wide at one end, diminishing to 10 at the other end, and are $\frac{3}{4}$ " thick with 1' flanges on the longitudinal edges; also $\frac{3}{4}$ " thick. Over the 5" intervals, and covering the flanges of the flat tiles, are placed the half-round tiles, which are of the same length, and are $\frac{5}{8}$ " thick. This method of construction is supposed to be preferable to the system of tiling usually adopted in the neighbourhood, for the following reasons:—"The large and heavy tiles used are less liable to fracture or displacement, and by the arrangement of the battens transversely from ridge to eaves, instead of fixing them parallel to the ridge and eaves, any water leaking from accidental causes would probably travel down the batten to the cornice on the exterior wall instead of dropping into the room below."

REMARKS BY DEPUTY SURGEON-GENERAL G. G. MAITLAND.

As regards the want of accommodation for Europeans, complained of in the report, Government, I think, have exercised a wise discretion in declining or rather ignoring Surgeon-Major Straker's suggestion to combine a Native and a European hospital. When the 43rd Company arrives, proper lines, including a hospital and apothecary's quarters, will, I have no doubt, be erected; but the time of its arrival, I am given to understand, is yet remote.

The general health of the corps has been good. The water-supply, both for the lines and hospital cannot, under the circumstances detailed in the report, be very pure for drinking purposes, although pronounced so last year by the Analyser, and, therefore, the early importation of the Kharakwāla water is looked forward to with some anxiety.

H. M.'s Poona Horse.

SIRUR.—In medical charge of Surgeon W. R. GORDON, M.D.; Strength, 308·3.

1. The regiment remained stationary at Sirur from January to the 6th October, when the head-quarters marched to Bombay, being joined at Tanna by the squadron from Dhulia. One squadron remained at Sirur, and subsequently marched to Poona to take part in the Camp of Exercise. The whole regiment returned to Sirur on the 21st December. A detachment of 150 men under an European officer was stationed in Khandesh from January to October, when they were ordered to Bombay. Outposts were furnished by this detachment to two important towns on the frontier of the district.

Location and Movement.

Detachments.
2. During the past year the lines were re-tiled, and the wood-work where defective was also renewed. The inside of all houses was scraped and white-washed, and, as far as accommodation for the men is concerned, nothing more can be desired. The courtyard behind each house is still defective, as its floor is now almost on a level with the plinth of the house. This has been caused by the *debris* of crumbled-down walls which were erected within the compounds by former occupants. Each man has his backyard arranged and partitioned off according to his particular fancy, and as the number and sex of his dependants may require. The syces' lines are substantial, and kept in thorough repair.

Lines.
3. The conservancy arrangements are still carried out as previously described. I expected to be able to report some desirable improvements, but the heavy expenditure for the necessary repairs of the lines has prevented any extra outlay on account of conservancy. The excreta from the lines has been buried in trenches in the mess garden, where it is utilised for agricultural purposes. As far as my experience goes, this system of manuring land answers but very indifferently with the soil about Sirur. Before it can be used at all, the ordure must be thoroughly decomposed, and mixed with the soil, and as a matter of fact this is more than a Native will wait for or take the trouble to perform. It is far too rich a manure when used in any quantity for such light shallow soil as prevails in this district. When the regiment was stationed in Bombay the conservancy arrangements were very unsatisfactory, and at first caused great inconvenience to the men. The ground allotted for the camp was but small and irregular, and it was absolutely necessary to pitch the latrine screens close to a public road. On this account occasional complaints by the Health Department were unavoidable, although the utmost care was taken to keep the place clean, and have the filth regularly removed. Native cavalry regiments have to provide all their own camp equipage, except latrine screens and hospital tents, which are supplied upon indent if available. On arrival at large stations such as Bombay or Poona, where conservancy rules have to be rigorously enforced, it would be a boon to the men to find some place ready to which they might resort for purposes of nature, and this I think ought to be arranged by the Health Department. Let it be remembered that with cavalry regiments, under the present system, there is no regular quarter-master, and that the officer on whom the duty devolves, is never supposed to precede the regiment. Screens and other necessities may have been indented for, and everything supplied by the department concerned; still a spot has to be selected, the screens pitched, and trenches dug, which must necessarily entail a delay of some two or three hours, as both men and syces have quite enough to do, to look after their horses and equipments on arrival from a long march.

Conservancy and Sanitary Arrangements.
4. The water-supply for the use of the regiment as well as for the whole village is obtained from the River Goreh. The supply is constant and of very fair quality, except during the rains, when it has to be filtered, to free it from suspended impurities. Lately there has been some correspondence about growing melons in the bed of the river, and I trust that, before the hot season sets in, the custom may be prohibited.

Water-supply.
5. Generally speaking, food, during the past year, was abundant and cheap, but it would be advantageous if the gardeners in the vicinity could be induced to grow vegetables in greater abundance and of better quality.

Food, Quality of, and whether abundant and cheap.

6. The duties of the regiment while stationed at Sirur are very light indeed, consisting of the ordinary parades and light guard duty. On the march to and from Bombay the men enjoyed excellent health, and so also during the stay of the regiment there, although the escort duty was hard and trying. Only one case of venereal was admitted into hospital during the absence of the regiment from Sirur; it was contracted on the march from Dhulia.

Duties, and their Effect on Health.

7. The insufficiency and unsuitability of the lock-up and guard room has been represented to the military authorities through the Commanding Officer, and the subject has been alluded to in medical reports for some years past.

Lock-up Rooms and Cells.

8. Plans and estimates for a new hospital and subsidiary buildings have been drawn up, and are now before Government. The whole regiment is at present stationed at Sirur, and the want of hospital accommodation is obvious, as patients with trivial complaints and convalescents have to be treated in the lines to prevent overcrowding.

Hospital and its Surroundings.

9. Generally speaking the men of the regiment have enjoyed very fair health, there having been 292 admissions in an average strength of 308. Of these, 61 were re-admissions, caused chiefly by fever and rheumatism. The ratio per cent. of admissions to average strength was 94.7 as compared with 60 for 1874. There were 2 deaths in the head-quarters hospital, and 1 occurred among the men left at Sirur when the regiment went to Bombay. For this detachment separate returns were submitted by the medical officer left in charge. 6 men were granted sick leave for periods varying from 2 months up to a year. There were 15 men passed by the annual invaliding committee out of 20 sent up.

Sickness, Mortality, and Invaliding.

10. Ague gave 65 admissions, all of a comparatively mild type, except 3 which were admitted on our return from Bombay, and are still in hospital. Chronic rheumatism gave 14 admissions,—some of them, no doubt, real cases of sickness, but I do not hesitate to say that others were exaggerated, if not feigned. Only 1 case of syphilis was admitted into hospital; but this is no criterion of the actual number of cases which occurred. The men of this regiment suffering from syphilis in its primary stage have a great objection to go to hospital, as they don't wish it should be known. The consequence is, that they put themselves under the care of some ignorant hakeem, who directs the whole of his attention to the local affection. Months after, the patient presents himself to the medical officer with marked symptoms of secondary syphilis, but, as a rule, sufficiently well to do his duty: so he is not admitted into hospital. One man was admitted twice for epilepsy, of which he died during the absence of the regiment in Bombay. Conjunctivitis gave 14 admissions, all of them simple cases, and yielding readily to treatment. Diseases of the respiratory system gave 9 admissions, of which 5 were for bronchitis. 10 cases of dysentery were admitted, all of them treated with ipecacuanha preceded by a full dose of opium. From colic there were 8 admissions, diseases of the cellular tissue gave 16 admissions, 7 from abscess, and 9 from dracunculus. Diseases of the cutaneous system gave 30 admissions, of which 17 were from boils and 4 from scabies. From injuries there were no fewer than 67 admissions, all of them the result of accidents on parade. There were 3 cases of concussion of the brain of which 1 died, 4 cases of fracture, and 1 of dislocation. The other death was from diffuse periostitis, the result of a previous injury. The European officers have enjoyed very good health. On the march from Bombay I sustained a wound of the arm which prevented my doing duty for nearly a month.

Principal Causes of Sickness.

11. The effects of the unusually scanty rainfall during 1874 was very apparent last hot season. By the 1st of May several of the wells in the officers' compounds were almost dry, and in the large well close to the lines, which is over 40 feet deep, there was not a drop of water. The river, however, continued to flow, and I don't think that scarcity of rain, which would appear to have been local, had any influence on the health of the population. The rainfall during the past year was upwards of 20 inches.

Influence of Rainfall.

12. In January measles broke out in the lines, and before the epidemic abated almost every child in the cantonment was attacked. The disease was of a very mild type, and no deaths occurred. The epidemic of cholera, which spread over the Deccan last year, was not severely felt at Sirur, although the villages on both sides and within a mile or so suffered considerably. Cholera made its first appearance in the taluka at Talegaon, the seat of the Subordinate Judge's Court. From Násik the epidemic had been gradually spreading along the high road towards Poona, and one of the first villages in the district affected, was

Epidemics.

Talegaon, to which it was most probably conveyed by people assembling to attend the court or the weekly market. From this it spread in all directions; and as I wish to show how it reached Sirur, I shall give the result of my own enquiries. On the 11th May some people travelled from the infected district to Phakta, a village on the Goreh about 16 miles distant from Sirur, and on the following day 3 people were attacked in that village. At the time of the outbreak the patel of Old Sirur was at Phakta, and becoming alarmed he at once returned to his home, where he died of cholera on the 18th, thus bringing the disease to within two miles of the cantonment. Several cases of diarrhoea occurred in the town and lines previous to the appearance of cholera, and, although every precaution was taken to prevent communication with the infected village, it was of no avail. The first case of cholera appeared in the lines on the 26th May, and in all there were 1 sowar and 5 followers attacked; of the latter 3 died. In the adjoining village there were 20 cases, and of these 11 died.

13. Vaccination has been carried on at regular intervals, and I may safely state that every child residing within cantonment limits is vaccinated before it is four months old. During 1875 there were 73 children vaccinated, all successfully; and 38 persons were re-vaccinated, but of these only 5 were successful.

14. The men of the Poona Horse are, generally speaking, very healthy, and although many of them are apparently thin, they are capable of enduring considerable fatigue. In last report I remarked that the Hindus, as a class, are much more sickly than the Mussulmans, and this is perfectly obvious from the returns of the past year. The admissions into hospital among Hindus were at the rate of 126.3 per cent. to average strength, whereas amongst Mussulmans the admissions were only at the rate of 79.9 per cent. This clearly proves that the man who consumes animal food is better fitted for a soldier than a vegetarian.

15. Cinchonidine has been used in the treatment of malarious fever instead of quinine. It apparently answers very well for the type of fever met with in the Deccan, but in the few severe cases of ague which have come under my treatment it did not appear to have the desired effect. I have lately tried the decoction of cinchona combined with small doses of quinine, and find it to answer very well. In a typical case of cholera I tried the hypodermic injection of hydrate of chloral during collapse. Whether this method of treatment possesses the great advantages claimed for it by some medical officers, I am not prepared to say, but I think it is well worth a trial.

REMARKS BY DEPUTY SURGEON-GENERAL G. G. MAITLAND.

Proper conservancy arrangements appear to be still required in this regiment. Plans and estimates for a new hospital and its subsidiary buildings have, for some time past, been before the military authorities. The site I proposed, is to the east of the present horse lines. The manner in which the epidemic reached Sirur is worthy of note, and only confirms, if confirmation were necessary, that one of the chief causes of the spread of the epidemic is intercommunication with infected localities.

Detachment H. M.'s Poona Horse.

DHULIA.—In medical charge of Surgeon G. BAINBRIDGE; Strength, 91.5

1. This detachment marched for Bombay on September 25th.

2. All topographical and sanitary matters having been noticed in my last annual report as well as in several previous ones, I need not allude to them this year, except to express my disappointment that the new lines which have been sanctioned will probably not be commenced this dry season, owing to funds not being available.

3. The number of sick treated during the nine months under notice was 33, of whom 31 were admitted during that period. 32 men were discharged from hospital cured, and 1 died. The sickness was mostly of a slight and unimportant nature; 3 men were, however, attacked with cholera, which broke out severely in the lines and neighbourhood on the 7th May; they recovered, and, although the men's families and followers suffered rather badly, the remaining men of the detachment escaped in a wonderful manner. The following is a short account of the outbreak as it affected the Poona Horse lines and their vicinity; I have made full remarks upon the epidemic in Dhulia in my special report upon the

subject, dated the 25th November last, submitted to the medical authorities. The disease broke out in the town of Dhulia on the 26th April, the first case being that of a traveller (a Dher) from Málegaon where cholera had been prevalent for some days. Immediately on the outbreak of the malady in Dhulia the men were forbidden to go into the town, and all strangers were prohibited from communicating with the lines and its environs. To carry out this isolation, sentries were posted. It was, however, found impossible to prevent the civil population passing to and fro between their homes and the bazaar, and intercourse between the two quarters was, therefore, only limited. I believe, however, that the exclusion of beggars and other strangers, and the confinement of the sowars to the neighbourhood of the lines, were secured. It is noteworthy that the disease did not appear in the Moglai until 12 days after its commencement in the town, although intercommunication was by no means thoroughly interrupted. The disease first attacked the wife of a Lingayet Bunya, named Suckoo Appa, living in the small bazaar of the Moglai. It then spread rapidly over the whole locality as if every part of it had been affected simultaneously with the choleraic influence. The whole place being the reverse of clean, and all, or nearly all, of the houses of both the civil inhabitants and men of the Poona Horse being small, badly built and arranged, and very much overcrowded, it was not surprising that the close unwholesome atmosphere afforded a favourable medium for the development of the disease. The maximum violence of the epidemic in Dhulia was reached between the 11th and 22nd of May, the greatest number of admissions having taken place on the 11th, 12th, 13th, and 14th, when there were, respectively, 44, 22, 37, and 23 admissions in the town and Moglai together; and the whole of the cases in the latter quarter (inclusive of the Poona Horse), which were 73 in number, occurred between the 7th and 17th May, the epidemic ceasing entirely after the latter date so far as this locality was concerned. The camp and vicinity were cleansed as much as possible, but no special measures of disinfection or white-washing were resorted to. Destruction of the evacuations and digging up the fouled floors were carried out as far as practicable, and the advisability of doing so inculcated upon the people. I advised the Officer Commanding the detachment to be prepared to march out into camp if necessary; and tents were accordingly procured from head-quarters, there having been none here previously. The disease confined itself, however, chiefly to the women and children of the syces and followers and a few members of the men's families, and only 3 sowars were attacked, all of whom lived in different huts widely separated. 2 of these men were of decidedly feeble constitution, and the other, though healthy, could not be termed robust. They all suffered from a severe and prolonged form of the disease, but convalescence was tolerably rapid. None of the many men who lived near them, and who visited them and attended upon them whilst ill, were attacked with cholera or diarrhoea; several men fearlessly slept for several nights together within a few paces of their cots. The weather being hot, and the hospital some distance away, the 3 sick were not sent to the latter for treatment, but kept in a building in the lines which was set apart for the purpose, and which, in fact, had been occupied by one of the attacked and 2 or 3 other men when he was taken ill. The arrangement was much more convenient for the attendants and for their general comfort than if they had been moved away to the hospital; at the same time I would not advocate its adoption as a regular thing under the existing state of the lines, and especially if the sick were numerous. The treatment adopted in these and most of the other cases under my care was by the mixture mentioned by Dr. Aitken in the 4th edition of his Practice of Medicine, page 665, together with frequent doses of tincture of cantharides and of calomel. The use of hot bottles to various parts of the body and turpentine embrocations accompanied these medicines.

Account of Outbreak of Cholera.

Precautions.

Disinfection, &c.

Treatment.

4. The only fatal case was that of Naik Hareerao, aged 35, who arrived at Dhulia on the 20th March with a party from Sirur. He was admitted into hospital very ill with double pneumonia on the evening of the 23rd idem, being then semicomatose, with muttering delirium, much dyspnoea, and rusty sputa; he sank rapidly and died on the 27th.

Mortality.

5. There was a case of simple fracture of the tibia from a kick by a horse, which made a good recovery under treatment by rest and support by sand-bags but without splints.

6. The general health of the detachment was most satisfactory, with the exception of the outbreak of cholera. Considering the close proximity of the overcrowded huts of a poor and uncleanly civil population it is surprising that the epidemic did not cause great fatality in the corps. I trust that the attention of Government may be drawn to the urgent necessity for building the new lines: no authority, whether military or medical, could possibly deny the importance of carrying out this work after satisfying himself of the facts so often reported by me.

REMARKS BY DEPUTY SURGEON-GENERAL G. G. MAITLAND.

On former inspections of these lines the necessity for carrying out the measure of erecting new lines had always been apparent to me. Not only are the huts overcrowded and badly ventilated, but they are dangerously contiguous to a mass of hovels occupied by the civil population of what is termed the "Moglai". With the exception of an outbreak of cholera, which occurred in May last, the general health of the detachment has been very good, the admissions to hospital being only 30, or 29 per cent. to strength, with 1 death from pneumonia. Although cholera prevailed to a great extent in the Moglai between the 7th and 17th of May, yet only 3 sowars were attacked and recovered. This partial immunity amongst the fighting men no doubt was in great measure due to the prompt and judicious measures carried out by the Commanding Officer.

H. M.'s 19th Regiment N. I.

SHOLAPUR.—In medical charge of Surgeon-Major W. E. CATES; Strength, 668.

1. From 1st January to 4th November inclusive the regiment was stationed here; on the 5th the head-quarters, about 400 strong of all ranks, proceeded to Poona, leaving a detachment, about 303 strong, for duties at Sholapur. The head-quarters remained at Poona, under canvas, from 6th November 1875 to 1st January 1876, when they returned to Sholapur, which was reached on the morning of the 2nd January. The only detachment from head-quarters during the year, was one of about 89 strong, under a European officer, which proceeded in May to Tándulwári, about 15 miles from Sholapur, which rejoined head-quarters on 25th May 1875.

2. During the past year every attention has been paid to preserving the cantonment in a good sanitary condition. There has been no failure of good water, and the drainage of the station has been satisfactory. The hedges have been cut periodically, and the compounds kept clean, and free from noxious decomposing matter of any kind.

3. The year just past was marked by a somewhat higher temperature and a smaller rainfall than in the previous year. Little or no rain fell during the three hot months, and even in the monsoon instead of steady continuous showers the season was marked by occasional heavy falls of rain, followed by considerable intervals of dry, warm weather. A good deal of rain fell towards the end of the year (notably during a very severe storm which burst over the cantonment on the 6th December, and did considerable damage, not only to trees but to houses), and brought the total fall up to 28 inches, which is above the average, though considerably below the amount gauged in 1874.

4. The available space has been sufficient during the year. The trees planted, have been growing fairly well. The sudder bazaar is within a short distance, and its sanitary condition is not quite satisfactory. There are still no latrines, and consequently the poorer inhabitants resort to the nearest nullahs, which during the cold season are to windward of the regimental lines and hospital, and are often a source of annoyance, if not of actual danger to health. The attention of the civil authorities has been drawn to these objectionable practices, and the nuisance has not been so great during the past as in the previous year, but there is still room for improvement; and, until latrines are erected, I do not see how it can be entirely avoided. In other respects the sudder bazaar is well looked after, and is kept fairly clean and free from nuisances. There is a small tank below the lines, which usually dries up in November or December, but which at present contains water, owing to the late rainfall. It is not, I think, a source of malaria.

5. These are still carried out in the same manner. The lines have been kept clean, and the latrines regularly cleaned out twice a day. They are as free from smell as is possible without a strict system of dry conservancy. The nightsoil is removed twice a day, or oftener if necessary, and buried at a distance from the cantonment.

6. The water-supply has been sufficient during the year, none of the wells having failed, probably owing to the heavy rainfall in 1874. No complaint has been made of the quality, though, for reasons given by me last year, it would seem probable that there is a certain amount of contamination of the water of both the present wells. It has not, however, been analysed as yet, the necessary apparatus not having reached me. A new well is now in course of construction on the

site alluded to by me in last year's report, and promises to yield an ample supply of water, which, from the position of the well, ought to be of good quality and free from any organic defilement.

7. Food of all kinds forming the usual diet of the sepoys and of good quality has been abundant and tolerably cheap. The favourable effect of their being able to procure vegetables at a cheap rate, is shown by the fact that only a single case of scurvy was treated during the year, though 6 cases occurred in 1874, and as many as 27 in 1873, when the regiment was stationed in Bombay.

8. During the months of November and December there were in addition, at least for the head-quarters of the regiment, brigade parades and heavy guard duties at Poona; but these had no prejudicial effect on the health of the men, which, indeed, was particularly good during our stay there.

9. During a great part of the year the sepoys have their time pretty well occupied. When not on duty they are allowed to seek their own amusements: many pass away the time in sleep or in the bazaars; others in athletic exercises, &c. I think it would be of great service to introduce a gymnasium for the Native troops in every station as is done for Europeans; and I believe, if encouraged by the European officers, many of the sepoys would gladly avail themselves of it, with great benefit to their health and physical development, especially amongst young soldiers. I would also suggest the formation of regimental gardens, where practicable, in which the men might work when so inclined, and raise their own vegetables. Some of the sepoys of this regiment occasionally play cricket during the monsoon with the officers and other residents of the station, and this is also, I think, worthy of encouragement, not only as a healthy exercise, but as fostering good feeling between the sepoys and their European officers.

10. The regiment marched to the Camp of Exercise at Poona and back, and sent a detachment to Tándulwári.

11. No additions or alterations have been made during the year. I expressed a doubt last year, as to whether the ventilation was not excessive in the cold season, but there has been no special prevalence of pulmonary or rheumatic affections which might be referred to such a causation. Owing to a much diminished rate of sickness during the year, as compared with 1874, there has been no overcrowding. The requirements, mentioned by me last year, have already been sanctioned, and will, I believe, be commenced during the next official year, should funds be forthcoming for the purpose. The only further addition required, is a bath-room. The conservancy is carried out as described last year, and the hospital and its surroundings kept thoroughly clean. The hospital water-supply is the same as for the regiment generally.

12. There has been a very marked decrease in the amount of sickness during the past year as compared with the two previous—the admissions, including the detachment at Sholápur in November and December, having been 625, and the total treated 646 against 950 and 975 in 1874, and 952 and 967 in 1873. The percentage of treated to strength, which was 148·7 in 1873 and 149·5 in 1874, fell, during the year under review, to 97. The average daily number of sick, which was 31·2 in 1873 and 27 in 1874, was only 14 in 1875. The decrease in sickness, though most marked with regard to ague, was more or less noticeable in every class of disease, and may be considered as indicative of a generally improved state of health amongst the men, probably due to change of climate. The deaths during the year have been 2, showing a percentage of deaths to strength of 0·30, and of deaths to treated of 0·31, which also contrasts very favourably with the returns for 1873 and 1874. 2 deaths also occurred out of hospital in the cases of men absent on leave. Only 8 men were invalided during the year, of whom but 3 were hospital cases, the remainder being old men worn out with long service. Of the former 1 suffered from cataract, 1 from chronic bronchitis, and 1 from enlarged spleen and general debility.

13. Intermittent fever was by far the most important cause of sickness during the year, accounting for considerably more than half the total treated, but it prevailed to a very much smaller extent than in the previous year, the numbers in the two years being 345 and 597 respectively. The type was chiefly quotidian, and was mild, with little tendency to visceral complications. Unlike, too, the ague which attacked the regiment in 1874, it was not specially prevalent during the last three months of the year, but was pretty equally distributed throughout the year, the periods when it was most prevalent having been in January (which may be considered the close of the epidemic of the previous year) and during the monsoon months. As regards the marked difference between the two years, I can only assign, as a cause, the smaller rain-

fall, the manner in which the rain fell—that is to say, in heavy showers—with considerable intervals of fine weather, so that the ground did not get saturated with moisture; and the greater equability of the climate, especially towards the close of the year, when, owing to the late rainfall, there was not the sudden change from a warm, moist, to a cold, bracing atmosphere as was the case in 1874. In other respects the men were placed in exactly the same circumstances in the two years, having been equally well housed, clothed, and fed in both. The reduction in the number of cases cannot be accounted for by the absence of upwards of half the regiment in Poona during the months of November and December, as it was equally marked in the detachment which remained behind at Sholapur. Of the total number of 345 cases of intermittent fevers treated during the year, 335 were discharged to duty, 6 were discharged otherwise (some went on sick leave, and others were found to be suffering from some other disease, for which they were re-admitted), and 4 remained under treatment at the close of the year. 2 cases of mild remittent fever and 1 of chicken-pox were treated, 2 of acute, and 21 of chronic rheumatism, 15 of primary and 11 of secondary syphilis, 1 of diabetes mellitus, 1 of scurvy, 1 of muscular rheumatism, and 22 of lumbago. There was, therefore, as compared with the previous year, a decrease in the number of cases of rheumatism and scurvy (of the latter disease only 1 case coming under observation), but an increase in syphilis (most marked in the secondary cases) and lumbago. The increase in cases of secondary syphilis is due, I think, to the men concealing the presence of the primary sores until no longer able to perform their duty, of which several cases have recently occurred. As to the cases of lumbago, the majority of them occurred within the few weeks previous to the annual invaliding committee, and were, I believe, more due to anxiety for pension than to any other cause. The case of diabetes was a well-marked one, and the man was sent away on sick leave, having considerably improved under treatment. The urine, which when first examined measured 232 ozs. in the 24 hours, with a specific gravity of 1.034, was reduced, before he went on leave, to 48 ozs. He was sent away in April, and has not yet rejoined: so I presume there has been an exacerbation of the symptoms, and that he will require to be invalided. He had also commencing cataract in one eye. Of diseases of the nervous system only.

Diseases of Nervous System. 7 cases have been treated, 1 of sun-stroke, and 2 each of brow
ague, sciatica, pleurodynia. Diseases of the eye show 21 cases of conjunctivitis, 1 of soft cataract, 1 of sequelæ of iritis, 1 of chemosis, and 1 of impaired vision. The cases of conjunctivitis were chiefly of the catarrhal variety, and quickly yielded to simple treatment. The case of cataract was invalided. The case included as “sequelæ of iritis” presented some features of interest. The patient had suffered from constitutional syphilis, including iritis in the year 1874, and was again admitted for a similar affection in the year under review. The iritis in the right eye yielded in great measure to the usual treatment, but the man complained of total loss of sight in the left eye. An examination showed that there was deep-seated disease of the globe, accompanied by considerable tension. I sent the man to Bombay in order that he might consult the Ophthalmic Surgeon. I subsequently heard from Dr. Maconachie that he had examined the eye, and found a tumour, which he believed to be malignant, pressing the lens forward, and that he proposed to enucleate the eyeball, promising to inform me afterwards what was the nature of the tumour. I heard nothing more about the man until a few days ago, when he rejoined the regiment in just the same condition as when he left as regarded the left eye, but with an improved state of the right eye. He will, of course, require to be discharged as unfit for further service. The case returned as impaired vision was admitted during my absence in Poona, and the man was said, on my arrival here, to be suffering from diplopia, but I strongly suspect he is shamming; I can find no symptom of paralysis of any of the muscles of the eyeball. There were 31 cases of diseases of the respiratory system, 5 of bronchitis, 4 of pneumonia, 6 of chronic pneumonic phthisis, 4 of pleurisy, and 12 of bronchial catarrh; of the 6 cases of phthisis, 3 were discharged to duty, 2 were sent on sick leave, and 1 died. One of the 2 sent on leave also died at his home. 1 case of double pneumonia, occurring in an old non-commissioned officer of 36 years’ service, was a very severe one, and the patient was for a long time in a very precarious state, with symptoms of gangrene of the lung (the breath and sputa being horribly foetid), but under the administration of stimulants in considerable quantities, with inhalations of the vapour of water holding Condry’s fluid, or carbolic acid in solution, eventually rallied, and after a tedious convalescence returned to duty. Of diseases of the fauces and palate 6 cases were treated, 1 of ulcerated sore throat, 3 of quinsy, 1 of tonsillitis, and 1 of enlarged tonsils. One of the cases of quinsy terminated fatally, with symptoms of blood-poisoning. The man suffered, in addition to the local inflammation, which was of a low, phlegmonous type, from very severe hæmaturia and a certain amount of melæna. These yielded to gallic acid in full doses, but left the patient extremely weak, and he died from exhaustion consequent upon a severe attack of epistaxis. The cases of dysentery and diarrhoea were much fewer than in 1874, and they were of a mild type, yielding readily to treatment. One of the dysentery cases was sent away for change of air. Large doses of ipecacuanha, guarded by opium, was the treatment usually adopted for this disease. Four cases of jaundice were treated. One case of enlarged spleen was invalided.

14. Of the 2 deaths which occurred in hospital 1 was due to chronic pneumonic phthisis, and 1 to quinsy. One of those occurring out of hospital was also due to phthisis; the other was, I believe, a case of sudden death, but from what cause I am unaware. The men who died in hospital were both Hindus, one being a Punjabee and the other a Konkaneer.

15. The regiment has been entirely free from epidemics during the year: cholera prevailed in the town of Sholapur to a considerable extent in the months of July and August, and many cases occurred even in the sudder bazaar and in the Modekhana, both of which are in close proximity to the cantonment and regimental lines, but not a case occurred within cantonment limits. Stringent precautionary measures were adopted. All communication was, as far as possible, prohibited between the lines and the town, the sepoys not being allowed to enter the latter. Scrupulous cleanliness was enforced, and the men and their families were cautioned against the use of unripe or over-ripe fruit and other unwholesome food, and warned to apply for medicine without delay at the first appearance of any symptoms of looseness of bowels. The hospital assistants were also directed to visit the lines frequently and inquire for cases of diarrhoea. These measures were successful, and only 1 case of severe diarrhoea came under notice, which yielded to treatment.

16. Vaccination has been carefully attended to during the year. The number of primary vaccinations performed was 73, of which 66 were successful. There were also 13 re-vaccinations, of which 3 were successful. At the close of the year, 26 remained unprotected, of whom 6 were vaccinated on 1st January 1876, and the remainder are all under 3 months old.

17. The general health of the men has been very good, and they have, I think, improved in physique during the stay of the regiment at Sholapur. There were only 12 men on the sick list at the close of the year.

18. I have for some time past treated cases of intermittent fever with the sulphate of cinchonidine in doses of from 3 to 5 grains, but my later experience of the remedy has led me to modify in great measure the favourable opinion I had previously formed of its efficacy as an antiperiodic. It is often sufficient to effect a cure in slight cases, and in first attacks in previously healthy men, but in more severe cases and in subsequent attacks I have found it very far inferior to the sulphate of quinine, and have constantly had to substitute the latter for it after several days' trial. I have found also relapses to be more frequent after its use. The only other new remedy which I have been using during the year, is a solution of hydrate of chloral, of a strength of 1 to 50 or 100 parts of water, as an injection in gonorrhoea, and as an application to unhealthy sores, as recommended by some Continental practitioners, and I have had reason to be very well satisfied with its effects.

19. The only special observation I would wish to make with regard to matters bearing on the health and efficiency of the sepoy, is to express my opinion that all recruits, on enlistment, should be granted a free kit, instead of having to pay for it by heavy deduction from their monthly pay. The consequence of the present system is, that the young soldier, just at the very time when he most requires an abundant supply of good wholesome food to meet the demands of his growing frame, and the new and unaccustomed work he has to perform, is actually obliged either to half-starve himself for some months, or to run in debt to the regimental Bunnia, in which latter case he is likely to have to continue the starving process for some years.

20. On consideration of the facts adduced in the foregoing sections of this report it will be clearly seen that there has been a marked improvement in the health of the corps when compared either with the year 1874, or the previous year, when it was stationed in Bombay, and I think that the general physical condition of the men is good, and that they are fit for any duty. The requirements alluded to by me in the corresponding section of last year's report are likely to be provided for during the next official year, and a new well is already in course of construction, which will be a great boon to the men. A bath-room attached to the hospital is still required.

21. There has been but one Native medical pupil attached to the hospital during the year, who has received clinical and other instruction as opportunity offered.

22. I find that I have omitted to mention that a subedar was dismissed the service by sentence of a court-martial for drunkenness and insubordination.

REMARKS BY DEPUTY SURGEON-GENERAL G. G. MAITLAND.

The general health of this corps during the year is satisfactory, and contrasts very favourably with the previous one. The decrease in the admissions has taken place chiefly in intermittent fever. In 1874, 597 cases were treated; last year the number fell to 345.

This is a great falling off certainly, but it still shows that more than one-half of the admissions have been from the above cause. The comparatively light monsoon and the fact of heavy rain having fallen in January the medical officer in his report states to be the cause, in his opinion, of this marked difference in the two years. Be that as it may, I think there now can be little doubt, judging from past records of Native regiments quartered there, that Sholápur is a feverish station, and that so long as they continue to be sent there they will always suffer more or less from fever. The mortality in the regiment has been slight.

H. M.'s 13th Regiment N. I.

AHMEDNAGAR.—In medical charge of Surgeon-Major T. MILLER ; Strength, 674.

1. Small detachments of men were sent out as guards for the treasuries at Kopárgaon, Párner, Ráhuri, and Sangamner.

2. The rainfall—21 inches—was rather less than during the three previous years, when it was about 29½ inches. There was a heavy fall of rain—2½ inches, and a severe thunder-storm on the 7th and 8th of December. The rainfall had no injurious effect on the general health of the men.

3. These are in good repair and on a good site, and the streets are kept clean. Drainage, surface and natural. The bazaar is kept clean and in good order. The drainage is surface, very good of its kind ; no under-ground drains. The water runs off into neighbouring nullahs, which empty themselves into the River Sina, which runs past the city, and at about the distance of a mile from the lines. The open drains are cleaned out and kept in good order, and the water not allowed to stagnate.

4. The conservancy is properly carried out, and the sanitary arrangements good. The Conservancy and Sanitary Arrangements. nightsoil, &c., is carted out of camp morning and evening, and buried in trenches.

Water-supply.

5. Well water is not used by the troops.

Food.

6. Generally of good quality.

7. The ordinary duties of a Native infantry corps ; they do not appear to have any unfavourable influence on the health of the men. There is a gymnasium at which many of the men amuse themselves and go through a course of instruction ; some of the men, also, occupy their spare time in making articles of clothing and fancy work, &c., for the annual soldiers' exhibition at Poona.

8. The regiment marched from Ahmednagar on the 2nd November, and arrived at Poona on the 8th, and afterwards went through the different drills at the Camp of Exercise there. It marched from Poona on the 20th December, *viâ* Ahmednagar, *en route* for Málegaon.

9. The hospital and the other buildings connected therewith are in very good repair. The ventilation is very good. No overcrowding at any time occurred. The accommodation has been sufficient. The floor of the hospital is still of earth, and should be altered for stone or brick.

10. The number of admissions during the year has been more than during 1874 ; 543 cases having been admitted during 1875 against 527 for 1874, the average strength of this year being 674 against 613 for last. The average number of daily sick has been less than during 1874, being 14·7 against 15·7. The actual number of persons treated, was 481. Of the 554 treated, 11 were cases remaining in the hospital on 31st December 1874, 532 were discharged cured, 12 were sent on sick leave, 2 died in hospital, and 8 remained under treatment. The number invalided was 12,—3 on account of rheumatic affections, 4 for diseases of lungs, 1 for disease of the eye, 1 man was invalided by a special invaliding committee on account of an injury received from a cannon-ball falling on his foot, and 3 on account of old age and debility.

11. Have been—ague 68, febricula 42, acute rheumatism 13, chronic rheumatism 18, lumbago 23, dysentery 20, colic 16, boils 40, contusions of lower extremity 94. Syphilis has not been very prevalent, 3 cases of soft chancre and 4 of secondary syphilis having been admitted. Conjunctivitis was not so prevalent as during 1874, 37 cases being treated against 87 for last year. The cases were generally mild and easily cured, and were segregated as much as possible. Only 2 cases of cholera occurred—one in June and the other in August. Sporadic cases, although the disease

was prevalent in the surrounding districts. Precautionary measures were taken to prevent the disease being imported into camp, and it never broke out as an epidemic amongst the troops.

Mortality. 12. 2 Hindus died of cholera, giving a percentage of deaths to strength of 0·3.

Epidemics. 13. No disease assumed an epidemic form.

14. Vaccination has been performed as much as possible: 44 cases were successful, 2 unsuccessful, and 3 unknown.

15. The general health of the regiment has been very good, as seen from the number of admissions and deaths. The physique of the men is very fair; but, of course, there are always a certain number of weakly men and others who, on account of having to keep several relatives, cannot get such a nourishing diet as they require.

16. 2 men were discharged by court-martial in 1875. The health of the regiment has been very good, the mortality small, and admissions less than for the year previous. As stated in former reports, some change should be made in the clothing and invaliding rules.

REMARKS BY DEPUTY SURGEON-GENERAL G. G. MAITLAND.

There is nothing particular to remark upon in the medical history of the regiment during the past year. It was stationed at Ahmednagar until the 2nd November, when it marched to Poona for the Camp of Exercise, returning to its former station in December *en route* to Málegaon, where it is at present. The general health of the corps is stated in the report to be remarkably good. Ague has not been prevalent. Only 61 cases and but few serious cases from other diseases have been under treatment. In the months of June and August 2 cases of cholera occurred; both proved fatal. These were the only deaths during the year. Vaccination appears to have been carefully carried on since last report.

H. M.'s 15th Regiment N. I.

MA'LEGAON.—In medical charge of Surgeon-Major E. P. BURROWS; Strength, 608.

1. The regiment was stationed at Málegaon until the 19th October, when it left for Poona, marching *via* Nagar and Sirur. It was under canvas in Poona from the 6th November until 20th December, on which date it started on the return march to Nagar, its present station, which it reached on the 25th. Between the 23rd of February and beginning of July small detachments, numbering collectively 99 men, were on duty at Násik, Sinnar, Niphád, Chandor, and Nándgaon.

2. The season was a somewhat unusual one. The hot weather set in very early and continued remarkably late: the mean temperature of the hospital ward between the 1st March and 31st May was 3 degrees higher than that of the same period in the previous year. The heat during June was also above the average. The first rains of the monsoon fell on the 8th June; between this date and the 20th September 27·10 inches of rain were registered; the total fall was 28 inches 72 cents, which is 8 inches above the average. Cold, dry breezes from the north and east set in early in October and continued prevalent until the end of that month, when there was a return of cloudy oppressive weather, which lasted until the beginning of December.

No alterations were made in the regimental lines at Málegaon. They were well kept, and in good sanitary condition. Roof-ventilation would, as I pointed out last year, be an improvement to the dwellings. The trench system of latrines was continued and worked satisfactorily. The supply of drinking water in the lines' wells was abundant and good.

3. Supplies of grains, meat, and vegetables continued good, and at no time above average rates.

4. 33 cases of injuries to the feet from bad boots have been under treatment during the year.

5. The march to Poona from Málegaon occupied 19 days (14 marches and 5 halts); the distance is 186 miles. The marches between Nagar and Poona are very long, averaging over 14 miles. For the first

three days out from Málegaon the weather was cool and pleasant; cloudy and oppressive weather was then experienced. The change was followed by an increase of the sick list, admissions from fever became frequent, and a few cases of conjunctivitis occurred. During the return march to Nagar; between the 20th and 25th December, the admissions from fever were very numerous.

6. 13 cases remained in hospital at the commencement of the year. The admissions were 517; of these 135 were re-admissions, giving 382 as the actual number of persons treated during the year. The admissions and percentage of treated to strength were considerably higher than in the previous year, as under:—

				1874.		1875.
Admitted	...	...	...	334	...	517
Percentage of treated to strength	...	...	...	54·3	...	87·17

The increase of sickness occurred chiefly in the last three months of the year whilst the regiment was under canvas at the Camp of Exercise at Poona and on the march to and from thence. Of 231 cases of febricula and ague during the year, 98 were admitted in December. 1 Punjabee died of cholera. 5 men were sent to their homes for different periods for change. 13 were invalided; with one exception they all had served for periods entitling them to pension, their services averaging nearly 21 years—the longest time served being 32, the shortest 17 years. The causes of unfitness for further service were:—1 deafness, 1 varicose vein of legs, 1 epilepsy, 1 chronic encephalitis (since dead), 1 asthma, 2 constitutional syphilis, 3 chronic rheumatism, 3 debility from age and service. 1 Native officer and 6 privates were otherwise discharged.

7. As already remarked, a very large proportion of the cases of ague and febricula occurred during the last quarter of the year when the men were under canvas, and due, in my opinion, in a great measure to the insufficient protection afforded by the present form of tents in use for sepoy: the tent walls do not reach the ground by about a foot, and exposes the men to the cold and wind at night. Ganja-smoking and opium-eating continue pregnant sources of ill-health, and the effect of spirit-drinking in the ranks came more frequently under observation than formerly.

8. The influence of rainfall on the sick list was shown by an increase of febrile disorders, chiefly ague and fabricula, immediately subsequent to the first heavy falls, the admissions from these complaints numbering 23 in July, whilst in June they were but 7.

9. Cholera made its appearance in the sudder bazaar in April, the first case occurring on the 20th. On the 4th of May the mother of a sepoy living with her son in the lines was attacked. She was at once removed to the old hospital building at the opposite end of the bazaar now in use as an isolation ward, and the house in the line closed and disinfected. A sepoy of the regiment was attacked on the 24th, and died on the 28th May. These were the only 2 cases that occurred in the lines. Cases continued to occur amongst Natives in the bazaar and other parts of camp until the end of September.

10. 69 children of the regiment have been vaccinated during the year.

General Health and Physique, 11. The physique and general health of the corps continues good.

Recruiting. 12. 19 recruits were enlisted. Their average height was 5 feet 5 inches, and their chest measurement over 33 inches.

Detachment H. M.'s 4th Regiment N. I. and Staff and Details.

ASIRGARH.—In medical charge of Surgeon-Major F. R. O'KEARNEY; Strength, 137.

1. The detachment 4th Regiment N. I. (Rifles), as referred to in last year's report, was quartered here from the 1st January to the 18th December; it left for Poona, and thence marched to head-quarters at Satara. On the same date it was relieved by another detachment of the same corps; strength, 148 men. With the exception of a monthly escort party to Burhanpur, there has been no detachment duty.

2. The annual mean of highest and lowest temperature, as given by self-registering thermometer, was 83·63 and 76·08 respectively; the mean daily range was 7·54. The number of days rain fell was 79; the amount collected, 39·93 inches.

3. The conservancy and sanitary arrangements continue as satisfactory as can be expected considering local deficiencies and drawbacks. Nothing effectual has as yet been done to secure for this fort and garrison a larger and better supply of potable water. A masonry filter erected in the Mamoo Banja Tank, which some years previously (1871) had proved a failure, was re-opened and somewhat modified as to the number and disposition of its filtering chambers and contents, and on the same principle as that of a filter constructed at Haripur, in the Punjab, said to have been favourably noticed in some of the published papers on Indian engineering. It seems to have consisted of one large and deep filtering chamber communicating with the cistern or settling reservoir by means of a masonry duct or tube with a syphon action. The filter here appears to have, in addition, an extra chamber, wherein the denser impurities collect and are precipitated before the water can reach the filtering chamber; the filtering medium utilised in this latter, was composed of sand and gravel of various degrees of fineness, with a good layer of charcoal placed about the middle of the filtering strata. Moreover, the finest description of sand was at considerable cost procured from Mortakka, on the Nerbudda, and the filtering strata packed so close as to ensure the slowest and most perfect percolation practicable. The filtering beds were disposed, briefly, as follows:—

Upper layer, 6" finest dust sand procurable.
 18" fine, sharp, quartz river-sand.
 9" of "khair" charcoal.
 10" of coarse sand.
 4" of smaller gravel.
 Lowest layer, 4" of coarse pebbles.

Each layer was separately rammed and consolidated so as to form, as it were, a solid mass, and thus after a week's consolidation the various strata formed, as regards closeness of grain, as perfect a filtering medium as it seemed possible under the circumstances to effect. On the morning of the 19th of July, when all was ready, the tank water was pumped into the first filtering chamber, and the operation slowly continued, with a head of 15" carefully worked up to, when, at 1 P. M. the next day (that is 31 hours after the work of pumping had begun), a small thread of water appeared issuing from the cistern. The operation as a crucial experiment was continued for 9 days—the filter each day being scoured out through the outlet cocks. Both process and materials in this experiment have thus been carefully described, as given by the engineer, in order to show that no pains apparently were spared to ensure the success of the experiment; and this, taken in conjunction with several former trials and the slowness and thoroughness of the experiment proves, it would seem, conclusively the impracticability of filtering this tank water for drinking purposes by means of an artificial masonry filter of this kind, however elaborate. The following is the analysis of the tank water after the experiment; the water was contained in glass-stoppered bottles, measured about 1 gallon, and arrived at the laboratory 3rd August 1875:—

						Grs. per Gallon.
Total solids dried at about 230° F....	...	...	...	...	...	15.96
Loss on ignition (blackening intense)	...	...	...	...	...	1.60
Chlorine ... ..	...	...	...	...	...	2.80
Sulphuric acid ... ..	...	...	...	...	...	Nil.
Lime ... ..	...	...	...	...	...	3.13
Magnesia ... ..	...	...	...	...	...	1.10
Silica... ..	...	...	...	...	...	2.80
Carbonic acid (combined) ... ..	...	...	...	...	...	6.75
Hardness before boiling (total) ... ..	...	...	...	...	...	6°30
After boiling, permanent ... ..	...	...	...	...	...	2°80
Temporary ... ..	...	...	...	...	...	3°5
<i>Ammonia—</i>						Parts per Million.
Indistillate from carbonate of soda, free ... ..	...	...	...	...	...	.02
Indistillate from permanganate of potash albumenoid ... ..	...	...	...	...	...	.48
Of nitrates and nitrites ... ..	...	...	...	...	...	1.80
<i>Oxygen—</i>						Grs. per Gallon.
Total required by the water at 140° F. in presence of acid ... ..	...	...	...	...	...	1330
After evaporation to about $\frac{1}{10}$ th, with chloride of aluminum and re-dilution ... ..	...	...	...	...	...	"
For iron salts ... ..	...	...	...	...	...	"

Colour in stratum of 2 feet	...	...	Opalescent greenish yellow.
Odour	...	...	Earthy
Taste	...	...	Nil...
Re-action	...	...	Neutral

Sediment consists of a very small quantity of sandy matter. No vegetable *debris* or infusoria.

From the above analysis it will be observed that the amount of oxygen and albumenoid ammonia as representing the amount of oxidisable organic matters are still in excess, and, therefore, the filtering process is considered not sufficiently perfect to render the water good and potable. This filter will, however, at a future time, in the ensuing year, be again tried, and results analysed, as it is just possible that a filter so newly constructed may not readily afford the result which may be given when the filter is brought more into use and becomes more water-tight and compact after the lapse of a greater length of time : one cannot be over-sanguine, however, with regard to any satisfactory result in this respect, considering the care and attention bestowed on this apparatus on this and many former occasions. In the meantime sites have been proposed and selected for two wells to be sunk along the edge of the tank; and as seemed important beforehand to ascertain the comparative merits of the quality of this tank water over that of the water similarly taken, unfiltered, from the "Sucker Bowree" tank, I forwarded specimens of both to the Chemical Analyser to Government, copy of whose report is subjoined :—

Analysis of 2 Samples of Water, marked A, from "Sucker Bowree" Tank, unfiltered ; B, from "Mamoo Banja" Tank, unfiltered ; drawn and forwarded 8th December 1875.

						A.	B.
						Grs. per Gallon.	Grs. per Gallon.
Total solids dried at about 280° F.	...	...	...	...	...	20.30	14.00
Loss on ignition	...	...	...	...	...	2.80	2.10
Chlorine	...	...	...	...	...	2.68	1.70
Sulphuric acid	...	...	...	...	...	Trace	Trace.
Silica	...	...	...	...	...	3.36	2.80
Lime	...	...	...	...	...	Trace	Trace.
Magnesia	...	...	...	...	...	4.74	4.34
Hardness by soap-test before boiling	...	...	...	...	...	11.20	7.70
After boiling	...	...	...	...	...	3.15	1.75
Ammonia free	...	...	...	...	...	.0462	.0371
Albumenoid	...	...	...	...	...	.0630	.0420
Oxygen required at 140° F. in presence of acid	...	...	...	...	...	.2562	.1624
Or, in parts per million,							
Ammonia, free	...	...	...	...	...	.66	.53
Albumenoid	...	...	...	...	...	.90	.60
Oxygen required at 140° F.	...	...	...	...	...	3.66	9.32

Both samples were yellowish in colour, destitute of odour and taste, and yielded, on standing, a greenish, brown, flocculent sediment containing vegetable *debris*, *confervæ*, and a few monads.

From the foregoing analysis it will be seen that there exists a considerable amount of organic matters in both of the test waters taken, unfiltered, from the two principal tanks of this fort, and that the tank A—"Sucker Bowree"—from which at present all and the only pure drinking water used by the troops is drawn, is obtained from that which, in point of analysis at least, is originally the most impure. The quality of the latter is, however, much improved by percolation into the adjoining well, situated close to the edge of this tank, and it would seem to follow (*cæteris paribus*) that, if a similar well or two were constructed near the other larger and cleaner tank B, the water obtained therefrom by percolation through a good well would yield a similarly favourable result, and that the water which was found to be unfit for drinking after careful percolation through the artificial filter would become potable

if filtered by the more natural and effectual process of a suitably situated and properly constructed percolating well adjoining this tank. The immediate edge of this tank is, however, apparently objectionable from want of any available percolating medium (cleft or cleavage in rock not being sufficient), and, moreover, this experiment has been tried many years ago, and found wanting. The best sites for wells here will, I should say, be found, not on the margin of the tank, but at some distance for 80 to 100 feet in the adjoining ravine and compounds, the soil in some of which appears considerably below the tank-water level, even during the hot weather; and though the abundant, gravelly, silicious, and clean soil therein would be most likely to afford space sufficient for the necessary percolation and filtration required, and this I have no doubt, if realised, will yield a favourable result. Both trials (*i.e.*, on edge and removed from tank) are now being made, the result of which will be referred to in due course. It is singular, however, that the only potable shallow well available in this fort was constructed, years gone by, under a native government; since this, various attempts have been made, but all have proved, up to the present, most unsuccessful and expensive failures. The water used by the Native troops is still of most questionable quality, being taken from the tank and but roughly filtered, through shallow holes (*jeeras*) made by the men themselves beside the tank. During the ensuing year I shall try and have charcoal filters introduced in the lines.

4. In the detachment, 4th Rifles, 153 cases came under hospital treatment, the milder forms being usually treated in the lines; of these 2 remained from the previous year, 149 were discharged to duty, 3 were discharged otherwise, and 1 remained under treatment at the end of the year. Of the 3 discharged otherwise, 1 was invalided, and the diseases of 2 were changed. In the garrison staff and details 34 cases were admitted; of these 27 were discharged to duty, 3 were discharged otherwise, and 4 remained at the end of the year. Of the 3 discharged otherwise, 1 was for diarrhoea and sent on sick leave, and the diseases of the 2 others were changed.

The average daily sick of detachment was	...	...	...	4.0
Do.	do.	of garrison staff and details	...	1.1
The percentage of treated to strength of detachment	...	...	...	111.7
Do.	do.	do.	of staff and details	32.2

There were no deaths, and only one of the detachment was invalided for scrotal hernia. One of the staff and details was sent on sick certificate for diarrhoea, as already mentioned. Of the number treated in the detachment of the 4th Rifles, 85 individuals account for the whole number admitted, and in the staff and details 23, which are, respectively, tabulated as follows:—

Detachment, H. M.'s 4th Regiment (Rifles) N. I.

46 men once in hospital	...	...	...	46
25 „ twice do.	...	...	...	50
7 „ thrice do.	...	...	...	21
3 „ 4 times do.	...	...	...	12
2 „ 5 times do.	...	...	...	10
2 „ 6 times do.	...	...	...	12
85				151

Garrison Staff and Details.

16 men once in hospital	...	...	...	16
4 „ twice do.	...	...	...	8
2 „ thrice do.	...	...	...	6
1 man 4 times do.	...	...	...	4
23				34

5. Considerably the largest number of admissions appears, as usual, for ague; 64 cases came under treatment, viz., 49 in detachment and 15 in staff and details, giving a percentage of treated to strength of 35.8 and 14.2 respectively. The prevailing form was quotidian or tertian, the latter predominating, accompanied with generally slight complications yielding readily, in most cases, to treatment. There were 3 cases of a rather severe type of remittent fever, viz., 2 in detachment and 1 in the staff and details, the latter rapidly running on to a continued fever accompanied with protracted delirium, bronchitis, and pulmonary affections and of a low adynamic type. The 2 cases which occurred in detachment, 4th Rifles, were also severe and protracted. The percentage of treated to strength for ague in detachment was 1.4 and in staff 0.9.

Admissions for Ague in Detachment, 4th Rifles N. I.

36 men once in hospital	...	...	...	36
4 „ twice do.	...	...	...	8
1 man 4 times do.	...	...	...	4
<hr/>				
41 men				48
1 man remaining from last return	...	...	...	1
<hr/>				
Total...				49

Admissions for Ague in Garrison Staff and Details.

8 men once in hospital	...	...	...	8
2 „ twice do.	...	...	...	4
1 man 3 times do.	...	...	...	3
<hr/>				
11				Total...15

45 cases of chronic rheumatism were treated in detachment 4th Rifles and 4 in staff and details. The contrast, as last year, with regard to both charges, is striking. Many of the cases occurring in detachment were due, no doubt, to former climatic causes and constant attacks of ague and dengue contracted during their protracted stay of 3 years at Baroda. It does appear remarkably suggestive, however, that most of those presenting themselves for treatment (and chiefly from January to September) were not the older and apparently more debilitated sepoys, but rather the comparatively younger and more robust men between the ages of 33 and 36, whose service of 15 years or more would entitle them, if invalided, to a pension; and there appears to be no doubt that the prospect of getting this, appeared uppermost with many who seemed to make the most of and to exaggerate their ailments. All were duly discharged to duty and none invalided. The percentage of treated to strength was 32·3 in the detachment and 3·7 in staff and details. Syphilitic bubo.—2 cases were treated. As there is no lock hospital at this station, it is suggested that a special ward might be added to the dispensary where the 2nd class hospital assistant could attend to those cases occurring in the bazaar, and which occasionally become a direct source of infection to the troops in garrison. 5 cases of dysentery occurred in the detachment, due to exposure to cold; all were mild with one exception, and readily yielding to treatment. A weakly and aged-looking warrant officer of the Commissariat Department died after a short illness of hemiplegia produced apparently by pressure on the brain from extravasation or clot of blood. This warrant officer had been up to a late hour on that afternoon at his work, when suddenly he became speechless, and sent for me at 7 p. M. Symptoms of hemiplegia rapidly set in, and he died, after every possible care, within 3 days from the commencement of the attack. 17 European women and children of the staff and 21 of the details came under treatment for complaints of a more or less mild form, and not requiring further special notice.

6. The chief causes of sickness were malaria, generated more especially after the

Principal Causes of Sickness. rains, and producing ague and remittent fever, and thus predisposing, together with cold damp or under over-exposure, to attacks of rheumatism. These complaints were in like manner to some extent attributable to the more or less debilitated conditions caused by frequent attacks of ague and dengue to the men, generally, of the detachment who had come from Baroda, and who by a continued stay of 2 years here had gradually recovered stamina, and eliminated to some extent the "*materies morbi*" of the paroxysmal and other fevers they previously had suffered from.

7. On this raised, isolated, and naturally well-drained hill fort the influence of rainfall is especially marked after the rains by the presence of heavy mists, fog, and considerable humidity of the atmosphere, and which under the influence of a hot tropical sun and much vegetation becomes a fertile source of malaria emanating from the underlying jungles, and engendering agues and paroxysmal fevers, which decrease in frequency and severity towards the end of the cold and approach of the hot weather.

8. Vaccination was assiduously carried out: 117 children were operated on. The 14 infant children remaining unprotected, were too young.

10. The general health of the detachment as compared with the previous year contrasts most favourably in almost every respect; that is, there was less sickness, less number of deaths, and fewer invalided. This in some measure was due to the fact of the detachment

General Health and Physique of the Men.

having been quartered here for 2 years, during which time they appeared to recover from the depressing effects of the climate of Baroda ; for, whereas there were 259 admissions from a strength of 147·7 in 1874, there were but 151 admissions from a strength of 137 in 1875.

11. The exercises and amusements consist of shooting, fishing, and hunting in large parties, and wood-cutting, &c., in the distant jungles, all of which exercises they appeared latterly much to appreciate and indulge in.

12. The only special treatment adopted, was that for ague with the sulphate of cinchonidine. The number of patients treated in 6 months was 34, the number successful was 21, unsuccessful 11, and doubtful or unknown 2. It must be said the therapeutic value of this drug as a medicine was not found to yield so satisfactory a result as that usually given by the sulphate of quinine. It was generally found useful in very mild cases only.

13. The dispensary established in the petha as supplementary to the fort and garrison, and raised to check in the petha the entrance of disease into the fort, especially that of an epidemic kind, has so far answered its purpose that, while small-pox and cholera prevailed in the villages of the vicinity (the latter since April), not a case occurred in this cantonment ; this being due, no doubt, in some measure to the precautions adopted, to the early checking of premonitory diarrhoea and bowel-complaints, and the adequate provision of arm to arm vaccination afforded by the constant presence of a hospital assistant on the spot and under direct superintendence of the medical officer of the station.

14. The instruction of the medical pupil was particularly attended to. He is instructed daily in the general routine duties of the hospital.

REMARKS BY DEPUTY SURGEON-GENERAL G. G. MAITLAND.

The site of hospital building is a good one. The accommodation, though limited, is sufficient for the daily average sick of the garrison (5·5), but not for the sick of the petha bazaar population, who living below and outside the fortress might be accommodated in the dispensary ; but why the sick of a bazaar should be treated in a military hospital, I do not understand. At other staff hospitals only public followers are entitled to admission. The present hospital is rather dark and insufficiently ventilated, and requires more doors and windows to admit of a perfect perfusion of air through the wards. The water-supply is, no doubt, at times scarce, and for drinking purposes not so pure as it might be ; but if filters were supplied to the Native troops, this drawback would in a great measure be remedied.

H. M.'s 4th Rifles.

SATARA.—In medical charge of Surgeon-Major C. G. H. Ross ; Strength, 352·5.

1. The head-quarters of the Rifles have been stationed at Satara during the year. Detachments have, during the period under report, formed part of the garrisons of Bombay and Asirgarh. With the view of relieving the two companies at the latter place, a detachment of similar strength, under a field officer, began its march on Asirgarh on the 12th November *via* Poona, where it was detained for a few weeks. Asirgarh was finally reached on the 17th December 1875.

2. Latrines on the dry-earth system have been erected along the banks of a nullah running into the Yena River, and the nuisance formerly complained of, abated if not abolished.

3. Water (sub-soil) is formed in camp at an average depth of from 30 to 40 feet below the surface.

4. The temperature by self-registering thermometers had a somewhat greater range this year than last ; the average extremes for 1874 and 1875 are here shown :—

Temperature.

For the Year 1874.		For the Year 1875.	
Maximum.	Minimum.	Maximum.	Minimum.
82·1	67·3	86·3	64·3

The rainfall was above the average, and amounted to 49 inches 14 cents.

5. The lines have not been improved since last report, and are over-crowded. The capacity of each hut is 810 cubic feet; and as each hut, including women, children and followers, is, on an average, occupied by 3 persons, this allows each individual 270 cubic feet only. To obviate the evil of the present system, proper accommodation should be provided for the Rifles, and new pendalls erected.

6. The defects of drainage in the lines are obvious enough. It was proposed to introduce a proper system of drainage, by which the surface gutter should be widened, deepened, faced with masonry, and covered, to prevent their noisome contents from contaminating the air. The present plan of sweeping the gutters, redolent of much impurity and of nightsoil, judging by the sense of smell, is exceedingly offensive, and cannot be condemned in sufficiently strong terms.

7. On this subject I would merely reiterate what is elsewhere on record, that in the station sanitation is at a discount, and that nothing in a sanitary point of view will be done effectively until Government sanction the re-conversion of Satara from a civil to a military station.

8. The water in use by the sepoys and their families is obtained from three wells in the lines; these dry up in the hot weather, and the supply is then brought from neighbouring wells. Additional wells should be provided in the lines, and those already there should be deepened. The water is considered good. Subjoined is an analysis of samples from the three wells, with identical results in all:—

Physical Examination.

Colour and transparency				Colourless and transparent.
Taste	...	...	...	Nil.
Smell	...	...	...	Nil.

Qualitative Results.

Re-action	...	...	...	Neutral.
Organic matter	...	...	...	Nil.
Lime	...	...	...	Present.
Chlorine	...	...	...	Present.
Sulphuric acid	...	...	...	Nil.
Nitrous acid	...	...	...	Nil.
Ammonia	...	...	...	Nil.
Sulphuretted hydrogen	...	...	...	Nil.
Iron	...	...	...	Nil.

Quantitative.

Solids

Total	...	...	...	224 grs. per gallon.
Chlorine	...	...	...	34.57 per gallon.
Hardness	...	...	...	15.7 carbonate of calcium per gallon.
Permanent	...	...	...	4 ditto.

9. Food in Satara is good, abundant, and tolerably cheap. The market price undergoes little change from month to month. Compensation on account of dearness of provisions is granted occasionally, but it seldom exceeds 4 or 5 annas per mensem.

10. The health of the men does not appear to have suffered from the usual routine of duty at this station. More guard duty was entailed on the departure of the Asirgarh detachment. The average number of consecutive nights in bed was $5\frac{1}{2}$.

11. A properly appointed hospital is urgently needed. On 4th January 1875 tents for the accommodation of the sick were pitched in rear of the hired bungalow previously used as an hospital, as it had to undergo

certain petty repairs. On their completion the re-occupation of the building was interdicted by the Commanding Officer, as the Executive Engineer was unable to warrant its being safe for those who from illness were incapacitated from moving themselves. Consequently, during the first quarter of the year the sick were treated under canvas. From the 1st April a newly-built bungalow was hired, which stands on the northern edge of the parade-ground close to the sudder bazaar and objectionably near it. As a temporary arrangement, and until the regiment is provided with a proper hospital, no better accommodation is available in Satara. The building stands east and west, facing the north; in rear are the parade and drill grounds, the centre of which is occupied by the lines. The bungalow is tiled, and stands on a plinth 2 feet high. The house contains 6 rooms in all, or, properly speaking, 5, as the front middle room is separated from that in rear by an archway; the end rooms are utilised as office and store-rooms, one being set apart for the reception of particular cases. It is well known that the hospital for Native troops is now occupied by the sick of H. M.'s 2nd Queen's. There are under the present regime no quarters for 1st and 2nd class hospital establishment. The dry-earth system is the one pursued in the hospital latrine. The hospital water-supply is furnished by the wells in the lines, and is considered good.

12. The amount of sickness during the year has been less than in the previous one. The average strength of the Rifles at head-quarters during the year was 352·5 with a daily sick average of 5·6. The percentage of treated to strength was 8·9 and of deaths to strength 0·2. In the list of general diseases admissions to hospital were as follows:—Chicken-pox 13, of ague 95 were treated, chronic rheumatism 45, syphilis—primary—6, and secondary 5, with syphilitic rheumatism 1, were treated in 12 instances. Admissions on account of scurvy were 5; of these 1 was invalided. The patient admitted with gangrene died. Under diseases of the nervous system 3 cases of brow ague were admitted; sciatica and pleurodynia furnish each a case. The man afflicted with dementia belonged to the 1st Grenadiers; he was remanded to his corps. In diseases of the eyes 4 cases of conjunctivitis were seen. Maladies of the respiratory system furnished 12 admissions for bronchitis and 1 with pleurisy. In diseases of the digestive system the admissions numbered 27. Under the head of poisons there is an admission due to the irritation of the milk-bush. Injuries furnish 32 admissions. There was 1 death. 13 men were invalided.

13. Ague, as in former reports, was the principal cause of sickness; chronic rheumatism comes next. The death which occurred was due to gangrene of the lower extremity (right); the deceased was a Hindu.

Influence of Rainfall.

14. The rainfall does not appear to have influenced the health of the men.

15. The regiment was unaffected by cholera, which was raging all around from July to November. A sepoy's wife, however, was attacked and died.

Epidemics.

A second case occurred to one of the followers, who recovered. In consequence of the appearance of cholera the lines were immediately white-washed, the huts disinfected, and gravel was laid down between the pendalls. A tent on a suitable site to leeward of camp was pitched for the reception and treatment of patients. Happily it was not required.

16. 13 children were successfully vaccinated, and 22 recruits re-vaccinated: the lymph was excellent.

17. The general health and physique of the men have improved since last report. The 51 recruits who joined were better, physically, than has been the case of late.

General Health and Physique.

18. In respect to the treatment of disease when special, I may mention the trial of the therapeutic virtue of cinchonidine. The experiment instituted in 13 cases of intermittent fever was unsuccessful. In none did the alkaloid prevent the return of the febrile paroxysm. Its power in mild cases of ague in well-nourished patients in temperate climates seems established, but its potency over intermittent fever contracted in the malarious districts of Western India by sepoys who, as a rule, are underfed, has, in the trial made in this hospital, no existence. Reverting to another matter, I deem it right to mention that, in cases of neuralgia, Easton's syrup ferri phosphat. c. quinia et strychnia has afforded many of my patients immediate relief when other remedies failed. Referring to the case of gangrene in which amputation was proposed in consultation with Surgeon-Major Mackenzie as a *dernier ressort*, the patient refused the operation. The question arises—would I have been justified in amputating without his consent? In the British Army the Surgeon in all cases, I believe, operates without deference to the patient's wishes. In the present instance the case was one of peculiar interest. The gangrene was

the result of local injury. A shoe-nail wounded the great toe. Rest, fomentations, poultices, a free use of the knife, carbolic-acid dressings, and constitutional treatment were all tried in vain. The entire limb was ultimately implicated by the gangrenous inflammation, and became so offensive that the patient was removed to a tent, where he was treated until he died. Amputation at an early date might have saved life. The case of perineal abscess was under treatment 60 days. On admission the symptoms were obscure. There was intense headache and a peculiarly weak pulse. In 4 or 5 days he complained of severe pain and tenderness in the left testicle, in 2 days more the scrotum was greatly swelled, and there was a bulging in the perineum which was laid open and a large quantity of offensive matter escaped. The urethra gave way, and a fistulous opening in the scrotum required a free use of the knife; the parts, thereafter brought together by three sutures and supported by strips of adhesive plaster, are now nearly healed. The perineal communication with the urethra has closed. Old stricture, of which the patient said nothing—in fact denies—accounts for the exceeding gravity in this case. After many attempts and no small difficulty I was able to introduce No. 3 catheter. The man has continued well ever since. No operations of magnitude were performed during the year on any of the sepoys of the regiment. In the clinical instruction of medical subordinates and medical pupil, when there is one, opportunity is taken, as often as it occurs, to teach at the bed-side and on the operating table the principles of medicine and surgery.

19. In drawing these remarks to a conclusion, as was stated last year it may not be out of place to suggest that steps should be taken to improve the sanitation of Satara. Additional lines, and of a better kind than those in use, should be erected. A hospital on a good site is urgently needed. The present make-shift is virtually in the bazaar. The sanitary condition of the bazaar is disgraceful. These and such like themes have been the burden of reports from Satara for years, and will only cease, it is believed, when civil gives place to military jurisdiction.

REMARKS BY DEPUTY SURGEON-GENERAL G. G. MAITLAND.

Surgeon-Major Ross brings to notice in this, as in a former, report the insanitary condition of this station. If his remarks are intended to apply to the Native lines I think they are exaggerated, judging from my inspection of them last year. He also dwells very forcibly on the want of a proper hospital. In this I concur, for I have always thought, and still think, that the Native regiment should be allowed to occupy their own building. The present bungalow in which the sick are located, is an improvement on the former one, for it appears quite capable of holding the average daily number of sick, allowing each patient about 1,600 cubic feet of space. Quarters for hospital assistants are needed. Epidemic cholera in a serious form was prevalent in the districts from July to September last.

H. M.'s 14th Regiment N. I.

KOLHA'PUR.—In medical charge of Surgeon D. HUGHES; Strength, 524.

1. Till the end of November the regiment was stationed at Kolhápúr. On the 29th of that month the head-quarters with 307 men marched to Belgaum, at which station they arrived on the 4th December. The left wing remained at Kolhápúr to await relief by the 3rd Regiment N. L. I. During the whole year a complete company has been on detachment duty at Kaládgi.

2. During last rains an analysis was made of the water from various sources. It will be observed from the appended tables that the free and albumenoid ammonia have not been estimated. The reason for this omission is that the apparatus I had constructed in the bazaar was not sufficiently air-tight, and experiments conducted with it gave most startling and inconsistent results. In last year's report, through a clerical error on my part, or a typographical one on that of the printer, I observe that I am made to say that the wells from which the sepoys draw their water-supply "are fitted with wooden covers so as to reduce to a minimum the chance of the water being contaminated with dust, &c. &c." The insertion of the word "not" before fitted, would render this statement correct.

Food.

3. The food during the 11 months the regiment was stationed at Kolhápúr was abundant and cheap.

4. The head-quarters left Kolhápúr on the 29th November and marched into the lines lately occupied by the 5th Regiment N. L. I. on 3rd December. The march was a short one through a healthy country

and the men did not suffer from the exertion and exposure. Small though the sick-list was, it would have been still smaller, had not some chronic cases been brought on from Kolhápúr in the hopes that they would derive benefit from the change.

5. This regiment now occupies the hospital which belonged to the 5th N. L. I. while that corps was stationed at Belgaum; it has been well described by Dr. Day in his report for 1874. I agree with that officer in thinking that a ward should be built for the reception of infectious diseases. Cholera and small-pox are, doubtless, best treated in tents or chuppers; but children with measles or varicella would do better in a well-ventilated but not draughty ward. A separate ward would, moreover, be a great convenience for the observation of suspicious cases and the temporary accommodation of contagious diseases while a chupper was being erected. A covered way from the hospital to the latrines and cook-room would be a great comfort to the patients in the rains.

Hospital.

Latrines.

6. Both here and at Kolhápúr the latrines are on the dry system.

7. At Kolhápúr the water for the hospital was drawn from the nearest regimental well; here it is obtained from a well in the hospital compound dug by Mr. Raghojee Patkur, an old hospital assistant.

Hospital Water-supply.

8. The health of the regiment, during its 4 years' stay at Kolhápúr, has steadily improved. The number of admissions from all causes was 419 in 1875. The following percentages of treated to average strength show the progressive improvement in the health of the regiment:—in 1872, 98·3; in 1873, 97·4; in 1874, 74·1; and in 1875, 81·6. The apparent increase, last year, is owing to sickly men not having been sent on detachment duty to Kaládgi.

Sickness.

Mortality.

9. 1 jemadar, 1 naique, and 2 sepoys died during the year 10 men were granted sick leave, 23 men have been pensioned, and 2 discharged the service on medical grounds.

10. There were 123 admissions for ague. The disease was of a mild type. There were 34 admissions for boil, 22 of them being in the months of September, October, and November. The patients on admission were all in a low state of health. The 16 cases of conjunctivitis were all slight. The disease never threatened to become epidemic. Bronchitis and bronchial catarrh were common during the rains. 3 of the 8 cases of hepatitis were very severe, and threatened to run on to abscess. 3 severe cases of pneumonia, 1 of which proved fatal, were treated. The 4 cases of dysentery were all of a very mild and tractable type.

Principal Causes of Sickness.

11. 1 man died of pneumonia on the seventh day of the disease; an old naique died from the irritation of an ulcer on the foot followed by blood-poisoning. A Native officer, who had been sent on medical certificate to head-quarters from the detachment at Kaládgi, sank shortly after his arrival in Kolhápúr; his disease was chronic diarrhoea.

Causes of Mortality.

Mortality according to Caste.

12. Of the men who died, 3 were Hindus and 1 a Christian.

13. The rainfall registered in the regimental hospital was 51 inches 49 cents. Rain fell in April, May, June, July, August, September, October, and November. By far the heaviest fall was in July, when 23 inches 4 cents fell. In August and the two succeeding months there was but little rain, and the weather was occasionally very steamy and oppressive. During these three months and in November the admissions for fever were numerous (68).

Influence of Rainfall.

14. During the past year the camp and bazaar at Kolhápúr have escaped epidemic disease. It is worthy of note that, though during last monsoon cholera was very prevalent in the city of Kolhápúr and the adjoining villages, not a case occurred either in the lines or bazaar. To the good water-supply, the happy position of the lines, and their cleanliness, as well as to the strict quarantine that was enforced, this immunity must be ascribed.

Epidemics.

15. Vaccination and re-vaccination have been carried on assiduously.

16. The general health and physique of the men are good.

17. Cinchonidine appears to possess decided virtues as an antiperiodic. The great drawback to its use is that it is very apt to produce headache. Ipecacuanha-spray has again been used in the treatment of asthma. More extended experience has led me to modify the high opinion I had formed of this mode of treatment: in some cases it acts like a charm, in others it only gives very temporary relief, and in a third class of cases, where the disease is complicated with chronic bronchitis or emphysema, it does no good whatever.

Treatment when special.

18. The medical pupil attends school, and daily receives clinical instruction, and is practised in dispensing.

REPORT on Potable Waters of Kolhápúr analysed by Surgeon D. E. Hughes, M.D.

Camp Kolhápúr, 28th September 1875.

Date of Analysis.	Water-source, and by whom used.	Physical Properties of Water.	Re-action.	Hardness.			Grains of Oxygen removed by readily oxidizable matter of 1 Litre of Water.	Grains of Oxygen removed by oxidizable matter of 1 Li- tre of Water at 60 C.	Nitric Acid.	Lime per Gallon, Grains.	Chloride.	Sulphuric Acid.	Remarks.
				Total.	Perma- nent.	Remov- able.							
5th Sept. 1875 ...	Well No. 12, used by Mah- rattas, Punjabees, Pur- dasees.	Clear, colourless, tasteless, free from smell.	Alkaline...	9.10	4.9	4.2	.00044	.00095	None	3.528	...	...
6th do. ...	No. 5, Mochees' well ...	Clear, colourless, free from smell; taste unpleasant.	Do. ...	8.05	7.35	.07	.00062	.00134	Do.	.382	Present.	Present.	
7th do. ...	No. 7, Purwarrees' well ...	Clear, colourless, free from smell, agreeable.	Do. ...	5.25	3.85	1.4	.00046	.00214	Do.	2.584	Do.	Do.	
11th do. ...	No. 1, Mahrattas, &c. ...	Colourless, odourless, agree- able	Do. ...	7.85	5.6	2.2	.00126	.00322	Do.	1.764	Do.	Do.	
13th do. ...	No. 3, Barrack well ...	Colourless, tasteless, odour- less	Do. ...	8.05	3.50	4.55	.00038	.00138	Do.	2.940	Do.	Plentiful.	
13th do. ...	No. 2, Engineer's well ...	Do.	Do. ...	7.00	5.6	1.4	.00050	.00162	Do.	1.372	Do.	Present.	
14th do. ...	Rankala Tank ...	Do.°	Do. ...	1.75	1.2	0.55	.00126	.00304	Do.	.39	Trace.	Trace.	Conferva & fila- ments, vege- table fibres, sand, & clay. Much sand and clay.
14th do. ...	River ...	Yellowish, faint smell, opaque, taste earthy.	Neutral ...	1.05	.875	2.05	.00074	.00196	Do.	.196	Present.	Do.	Vegetable mat- ter, zinc, sand in small quantity.
14th do. ...	Kataynee ...	Hazy, odourless, agreeable	Alkaline...	4.20	3.50	.7	.00042	.00160	Do.	.980	Trace.	Do.	

REMARKS BY DEPUTY SURGEON-GENERAL G. G. MAITLAND.

The general health of the men has been good since the corps arrived at Kolhápúr in 1872, and there has been progressive improvement. Cholera, though very prevalent in the districts and in the town of Kolhápúr, did not reach the lines or bazaar. This immunity from the epidemic the medical officer ascribes to the good supply of water, the position and sanitary condition of the lines, and to the quarantine enforced. The head-quarter wing of the regiment marched on Belgaum on the 29th November. The villages on the road had in the previous months suffered much from cholera, but were free from the epidemic before the regiment left Kolhápúr. Dr. Hughes states the men bore the march well, neither suffering from exertion or exposure. Under the head of "treatment when special" Surgeon Hughes makes some interesting remarks on the use of the ipecacuanha-spray in the treatment of asthma. Vaccination was carried on assiduously.

H. M.'s 5th Regiment N. L. I.

BELGAUM.—In medical charge of Surgeon-Major DAY; Strength, 634.

1. Remained till 3rd of December at Belgaum. A workshop at Belgaum has been completed during the year; no other alteration. The water-supply has been abundant, the rainfall having been heavy.

2. The highest rate of grain compensation during the year has been 3 annas and 10 pies and it has only been paid for 3 months. I think that recruits are much under-fed for the first 2 years of their service, during which time they have hard work, and only get about 5 rupees a month, the other 2 rupees going to pay for their kit. I have often noticed, when a new batch of recruits joins that they have a healthy, sleek look about them, which becomes in a month or two changed to a wire-drawn, haggard one, which I attribute to the short allowance of food they get while doing hard work.

3. On the march from Belgaum one company had new chupples (sandals) given to them; and I think that the experiment was successful, as only 2 or 3 cases of shoe-bite came from that company. One man, it is true, got a very large sloughing ulcer where the pressure over the instep was; it was so bad that I am inclined to look upon it as a poisoned wound caused by imperfect dressing of the leather rather than to pressure and friction. The men other than those belonging to this company, had permission to use what kind of boots or shoes they liked best, and many of them bought chupples. A new dress is under consideration for the regiment, and it is for this reason the men were granted permission to wear what they pleased to cover their feet on the line of march. I noticed that some few of the men preferred going bare-footed; but chupples certainly were chosen by the majority. At Sunkeshwar about 100 men bought chupples, and they have the merit of cheapness, for they can be obtained for 8 or 10 annas a pair: this is a very important element in the question, for the sepoy is not tempted to go on wearing boots that do not fit him in the first instance, and when they get out of order to continue wearing them to save expense. The regulation boot costs about 1½ rupee to 2 rupees, so that the saving is very considerable. On the march about 30 cases of sore feet were treated; this in a march of 212 miles is not large I think, and if the men had used their regulation boots only I have no doubt that the number would have been very much greater. On one or two occasions leave was given to the men to wear their dhotirs, because there were rivers to cross and their trowsers would get wet. It subsequently appeared that the men liked the regulation trowsers better than their own dhotirs, for two reasons, viz. that the trowsers were warmer, and kept stones and dust better out of their boots. I was surprised to find them preferring the English dress to their own, but the reasons appeared sound.

Duties.

4. The duties have been very light.

5. The regiment marched from Belgaum on the 3rd December to Poona. The men were healthy on the march, as a rule; but one exception must be made, as a recruit got fever which became complicated with bronchitis, and he died. There were no other bad cases. About 10 women gave birth to children on the road, and kept up with the regiment. I gave them the dooly to travel in for about one day after parturition; this was the only assistance required, and serves to show what a very simple affair child-birth is to the Natives of this country. The camping grounds were, for the most part, in ploughed fields; fortunately they were dry. The regiment was first

in orders to march on the 15th of October ; at that time of year, unless there are camping grounds (which I did not see) other than those used by us, great difficulty would have been experienced. I believe that in many of the places the ground has not yet been taken up by Government for camps, so that the crops are still cultivated. I did not see much to object to in the sites chosen, except as far as concerns the question of crops. The ground at Karád is, perhaps, objectionable, as it is situated on an old burial-ground, and there is a tank of foul water quite close to the camp : a bheestie was caught bringing this water for the use of the hospital. I need not say that means were taken to prevent its happening again. Karád is of importance, being a halting place : so that, if possible, a better site should be chosen.

6. A bath-room was built in the verandah; this is the only change. No over-crowding.
 Hospital. The latrines have been kept clean ; the system has not been changed. In the hospital water-supply there is no change; water plentiful.

7. There has been no marked increase or decrease this year, the daily average being 14.4, whereas last year it was 13.7. For ague there have been 145 admissions and 2 deaths ; other cases, not severe, were treated with cinchonidine. The admissions for rheumatism, chronic, were 10 ; last year they were 16. The scorbutic taint acquired at Aden is gradually leaving the regiment. There have been 3 cases of primary syphilis, but not severe. There have been 14 admissions for secondary syphilis, but of these 4 were re-admissions. 1 short-service man had to be invalided from this cause; 4 old-service men were pensioned, syphilis being the more or less remote cause. 5 admissions from scurvy this year against 24 last year, showing the good effect of climate after leaving Aden. Of lumbago 24 cases. The old and worn-out men who come into hospital with the view to pension, are classed under this name. No pension rules could be better devised, in my opinion, to encourage scheming and embarrass the surgeon in his diagnosis than the present ones. Under paralysis agitans 1 man was invalided. 8 conjunctivitis, not severe. 12 cases of bronchitis caused by exposure to wet on guard. Asthma, 4 cases invalided out of 8 admissions; do not call for any remark.

Bronchitis. Dysentery, 12 cases, no deaths; this is seldom a formidable disease in Belgaum. There has been a large number of cases of worms, and taking those among women and children into consideration, 300. From what I witnessed myself I have a very strong belief that very many of the so-called cases of cholera occurring in the districts were nothing more than cases of worms. Before leaving Belgaum I was in hopes of obtaining some statistics concerning one taluka, which I think would have shown that a very large proportion of the deaths reported as cholera occurred among children and women. Now, according to Dr. Aitken, in an epidemic the mortality should be least among children, and in the epidemic of 1832 in Paris males died at the rate of 4 to 1 in proportion to females. Unfortunately I am not in a position to speak positively, but from what I could learn in conversation many more women and children died than male adults during the epidemic which prevailed last year (1875) in the Southern Mahratta Country. 2 men were brought into hospital who might easily have been thought to be suffering from cholera, that disease at the time being reported all round Belgaum. They, both of them, were in a complete state of collapse; purging and vomiting, cramps of the extremities, and suppression of urine existed in both cases. Thinking at first I had to deal with a cholera case, I injected chloral hydrate subcutaneously, and with considerable relief to the spasm. Having, however, a firm conviction that many cases of so-called cholera were cases of worms, I administered san-tonine in these cases, and the cause of the severe symptoms very soon became apparent, and large numbers of round worms were passed, and both patients recovered. One child, who was treated in the hospital, vomited worms which measured over 1 foot in length. I am of opinion that the severity of the symptoms had a good deal to do with the food supply in both cases above related; the sepoys had been receiving a very insufficient diet. Other cases occurred after a fast—i.e., the symptoms became severe then; children would be attacked after eating freely of sweetmeats after fasting. I am of opinion that at first there were some true cases of cholera in the Belgaum districts, but that subsequently the people were affected with round worms; and anybody who sees the enormous masses of worms which are passed from the Natives of this country will easily believe that most violent neurosis can be caused by them. At the time that 2 men came into hospital with worms as above related, a man came in with much the same symptoms, namely, collapse, purging, and vomiting, and muscular cramps of the extremities. I found that he had been trying the experiment of living on 1 anna a day. This man's food had been left standing in a copper dish for hours, and I have no doubt that, being in a feeble and an emaciated state from semi-starvation, the copper killed him. I found traces of copper in his vomit.

8. There have been 4 deaths in hospital, and 1 out. 2 deaths from ague have been mentioned above; the other 2 deaths are—1 diarrhœa and 1 copper-poisoning. The latter I have also referred to. The diarrhœa case was a man who was greatly debilitated with scurvy while at Aden. The death out of hospital was a suicide: the man shot himself in his hut while in a state of temporary insanity. 48 men have been invalided; of these, 3 men were of short service, and 26 had been rejected by the invaliding committee of the year before.

Mortality.

Invaliding.

9. I do not think that this year much can be put down to the scorbutic taint, but doubtless some debility remained; the conditions in all other respects were the same as last year, except, perhaps, that the rainfall was rather heavier. The march does not appear to have affected the health of the men generally. I cannot point to any special cause for the mortality. 2 deaths among Mahrattas (1 suicide) and 3 among Hindustani men give a percentage of 0·59 Mahrattas and 4·8 Hindustanis.

Principal Causes of Sickness, &c.

Influence of Rainfall.

10. Rainfall 68 inches and 77 cents, which is considerably over the average.

Epidemics.

11. None, except the cases of worms which I have above alluded to.

12. Vaccination has been carefully attended to. There has been no small-pox in the regiment, but the disease prevailed in the town to a considerable extent in the early part of the year.

General Health and Physique of the Men.

13. Much improved during the year, owing to light work and getting rid of the scorbutic taint.

Treatment of Disease when special.

14. Cinchonidine has been used and reported upon.

15. I do not know that I have anything to add to what appears in the body of the report, except that I wish to state that I think a sepoy, as a rule, does not get nearly enough nourishment. In Mauritius it has been, I believe, found advisable to give the Indian coolies half the value of their pay in ration and half in money. I think that some sort of arrangement of this kind might be advisable. The Government, buying provisions in large quantities, could go to cheap markets; whereas the sepoys, buying in small quantities, must buy at enhanced rates, and at the local markets.

Resumé of the whole.

REMARKS BY DEPUTY SURGEON-GENERAL G. G. MAITLAND.

The long residence at Belgaum appears to have been of the greatest benefit to the men generally. As regards Surgeon-Major Day's remark on cases of vermes simulating cholera, some instances may have come under his notice, but I hardly think the generality of cases in the districts reported as cholera were, after all, only cases of parasitic disease. Dr. Day, I am inclined to believe, is correct in stating that the majority of persons attacked with cholera in the late epidemic were women and children; but the mortality, as a rule, was comparatively slight.

H. M.'s 6th Regiment N. I.

BELGAUM.—In medical charge of Surgeon G. WATERS; Average strength, 610·5

1. The regiment is in process of being shifted from Belgaum to this station in four detachments. The head-quarters detachment left Belgaum on the 23rd October last, and reached Vingorla, a distance of 77 miles, by easy marches in 7 days and thence, embarking on board the I. G. S. "Dalhousie", arrived in Aden on the 11th November. The second detachment left Belgaum on the 24th November, reached Vingorla on the 30th idem, and arrived here on the 10th December. The third detachment is now *en route* to Vingorla.

2. A detachment of 50 men was sent to Perim on the 14th of November last. It will be relieved shortly, and the reliefs, as far as may be practicable, are arranged to take place every two months.

3. The lines, with reference to available space, ventilation, bazaar, neighbouring villages, drainage, and tanks, are precisely as described in last year's report on the 2nd Grenadier Regiment. The conservancy and sanitary arrangements are, in my opinion, most satisfactory.

4. Condensed water is supplied by Government for drinking and culinary purposes and well water for other purposes. The quantity of each seems to be sufficient for the fighting men, but the lesser allowance dealt out to the public followers might be increased with advantage. Government supplies the troops with rations sufficient in quantity and of fairly good quality. The ordinary red coat, woollen forage cap, with white puggree and blue trowsers, are worn at present; in the hot weather a white American-drill patrol coat will take the place of the red. A better protection for the head would seem called for, and suggestions for an improvement in this respect are under consideration.

5. The parade and guard duties, on which the troops are usually engaged, do not seem to influence their health injuriously. Gymnastics have not been practised by the troops since the arrival of the regiment in Aden, nor have they had any amusement for the same period. Some of the men are engaged in shoe-making, tailoring, and carpentering in leisure hours, and a workshop is being instituted.

6. The hospital has recently been reconstructed. It is well situated in an open space, exposed to the breeze, with no unpleasant surroundings, and has through ventilation by means of doors and windows, abundant accommodation, a large amount of shade on the northern aspect secured by means of a double verandah, a plinth of about 3 feet, and the superstructure is of excellent material solidly put together. The conservancy continues to be of a most satisfactory nature. The Government supply of water is sufficient for sick fighting men, but scarcely so for the public followers.

7. The sickness, mortality, and invaliding for the past year in percentages were—
 Sickness, &c. treated to strength 59·2, deaths to strength 0·6, deaths to strength 1·1. The daily average of sick was 11·1, and the daily average proportion per cent. of sick to strength 1·8. The greatest amount of sickness occurred in September, when there were 55 admissions, half of which was from ague; and the least in August, when the admissions fell to 13. In Belgaum as well as here in Aden fever was constantly the greatest factor in the aggregate of sickness; of other diseases none was very prevalent, and individual notice is, therefore, unnecessary. 7 deaths in and out of hospital occurred among the fighting men: 1 was from diarrhoea in April—the man being on leave, 1 from apoplexy in June in the regimental lines, 1 from cholera in August—the man being on leave, 3 from cholera in September, and 1 from pneumonia in December. 27 men were invalided. Cholera was the principal cause of mortality. 6 of the 7 who died were Hindus, and the other a Mussulman.

8. The rainfall in Belgaum up to the 23rd October was 61 inches 17 cents, and in Aden, from the 11th November to date, 53 cents. An increase of ague seems to be the immediate effect of rain in Aden.

9. Of epidemic diseases among the troops there were 2 cases of small-pox—1 in February and the other in March. Of chicken-pox 12 cases—2 in January, 5 in February, 3 in March, and 2 in May. Of measles 3 cases—1 in February and 2 in April. Of cholera 4 cases—one in August and 3 in September.

10. Among the children of the regiment there were 230 primary vaccinations; of these 169 were males. 182 were over and 48 under 1 year of age. Among the children of followers there were 15 primary vaccinations; of these 5 were males, and all were above 1 year of age. All the operations were successful.

11. The men of the 6th Regiment are tall, well-proportioned and lithe, and enjoy pretty good health, so far as my experience of them entitles me to speak. The men have enjoyed a comparative immunity from sickness during the past year; and if we exclude the deaths from cholera—which may be considered, so to speak, accidental—the mortality was very slight indeed.

H. M.'s 12th Regiment N. I.

DHARWAR.—In medical charge of Surgeon-Major C. F. OGILVIE, M.D.; Strength, 685.

1. During the year the regiment has been stationary. The remaining two-thirds of the regiment have been moved from the old condemned lines to the new.

2. The new cantonment of Dharwar, situated about 2 miles from the town, occupies an area of about 300 acres. It is situated in $15^{\circ}30'$ north latitude, and $75^{\circ}2'$ east longitude. To the north of it, about 46 miles, is the military station of Belgaum; to the south is the commercial town of Hubli, distant about 14 miles; to the west, by the Tini Ghát, is the sea distant about 90 miles.

3. The water for drinking purposes is derived from three wells which have been made by the P. W. D. within the past three years. Although the quantity has been sufficient during the past year, it must be remembered that the whole of the regiment was not located in the new cantonment until October 1875. It remains to be seen whether three wells will be sufficient during the year 1876; there can be no doubt that a fourth well would be a great boon. The water of two of these wells has been analysed, and the result is herewith forwarded. The analysis was made by the Acting Chemical Analyser to Government:—

Analysis of Water.

					Well to east of the Lines.	Well near Officers' Quarters.
					Grains per Gallon.	Grains per Gallon.
Total solids dried at about 280° F	...	...	...	...	25.76	10.08
Loss on ignition	...	...	...	...	.28	.84
Chloride of sodium	...	...	...	...	6.83	3.89
Sulphuric acid	...	...	...	...	Traces.	Traces.
Lime	...	...	...	...	7.52	4.54
Magnesia	...	...	...	...	2.62	Nil.
Silica	...	...	...	...	.28	.28
Carbonic acid (combined)	...	...	...	...	2.05	.68
<i>Hardness before boiling (total)</i>					15.4	6.3
Do. after boiling permanent					2.8	2.8
Temporary					12.4	3.5
					Parts per Million.	Parts per Million.
<i>Ammonia—</i>						
Free—In distillate from carbonate of soda					.28	.26
Albumenoid—Do. permanganate of potash					.08	.13
Of nitrates and nitrites					15.00	15.00
<i>Oxygen—Total required by the water at 140° F. in</i>					.0350	.0560
presence of acidNitrous acid					.0402	.0201
Colour in stratum of 2 feet	...	...	...	...	Clear, translucent.	Clear, translucent.
Odour	...	...	...	...	Nil.	Nil.
Taste	...	...	...	...	Nil.	Nil.
Re-action	...	...	...	...	Neutral.	Neutral.
Sediment	...	...	...	...	Copious, consisting mostly of red earth, which shows the presence of oxide of iron. No live animalcula seen.	
					Small quantity of red earthy deposit. No living animal life seen.	

From this analysis both samples, from the small amount of total solid matters contained in them, may be considered fair specimens of potable water; but the large amount of free ammonia present in each inclines me to view them with some suspicion, and to recommend their being boiled and filtered before use. There are no rivers near. There is a water-shed in the camp which conveys the water during the monsoon into two tanks, which are situated to the east and south-east of the lines. Two bunds have been heightened and strengthened to save the water thus collected; this water is used for all purposes

but drinking. Swimming has been recommended as a good, healthful exercise, developing the muscles, and at the same time cleansing the body ; and I am glad to state it is resorted to by several of the men.

4. The lines being built on the slope of the ground there is excellent surface drainage, the water in the monsoon being conveyed by a ditch into fields below the two tanks before mentioned.

Drainage.

Effects on Climate.

5. The above topographical conditions exercise a favourable influence on the climate.

6. The lines of this regiment have been completed during the past year, having been built by the regiment in about two years. They are built, I am informed, on the standard plan and space, and are all that

Lines.

a Native regiment can require. They are well and substantially built, and the strictest supervision has been exercised by all the European officers, from the commandant downwards. They face towards the north-east. The prevailing wind being from N. E. and S. W. at different seasons of the year there is a fee current of air continually passing through them. There are 32 blocks for the non-commissioned rank and file ; each is really a double row of huts, being divided into two rows dwellings by a central well which supports the roof. Before each hut there is a small garden plot, which is cultivated according to the taste of the occupant. On each flank of the lines there are 8 houses for the Native officers, with gardens to their flanks, in which plantains, &c., are grown. The following are the dimensions of the dwellings of the different ranks :—The Native officers' houses are 35 feet square ; they are divided inside into two or more rooms ; the height of them at the eaves is 6 feet. Non-commissioned officers' dwellings are 12 feet \times 10 feet, with a verandah 12 feet \times 4½ feet ; privates' dwellings (married) are 10 feet square, with a verandah 10 feet \times 4½ feet ; privates' dwellings (unmarried) are 10 feet \times 9 feet, with a verandah 9 feet \times 4½ feet. The height of the walls of the pendalls is as follows :—the central walls is 16 feet, the outer wall of the dwelling 10 feet, the verandah wall 6 feet. The thickness of the walls is as follows :—the central one is 2 feet, the outer one 1½ feet, and the verandah one 9 inches. The street running from front of lines to their rear, between Native officers' houses and the pendalls, is 30 feet wide ; there is a space of 30 feet between the pendalls, excepting the centre street, which is 160 feet ; there is a space of 65 feet between each row of pendalls, excepting the cross centre street, which is 110 feet. There are holes in the walls ; but I imagine they are generally kept very carefully closed, so that it is scarcely necessary to mention them. The foul air escapes through the roof, which is a single-tiled one.

Ventilation.

The regimental bazaar is situated a short distance to the rear of the lines, and at present consists of 12 shops. There are no villages within about 1 mile of the lines. There are, as I have before stated, two tanks in the cantonment ; at a distance of about ¾ of a mile there is the very fine tank at Keilgherry.

Bazaar.

7. The conservancy arrangements might be better : the present staff of sweepers is not sufficient to dig out and fill in the trenches thoroughly. The trenches are made in accordance with instructions received from the Quarter Master General's Office ; they have bamboo screens, are 40 feet long, 1 foot 4 inches deep, and 9 inches wide. The lines are swept very carefully every morning, and any exuberant vegetation is removed as soon as it appears. The neatness, good order, and cleanliness of the lines and bazaar are very satisfactory.

Conservancy and Sanitary Arrangements.

8. The food chiefly used by the sepoy is abundant, cheap, and of good quality. The highest rate paid by Government to sepoys for dearness of provisions during the year has been 13 annas and 10 pies ; the lowest rate was 3 annas and 4 pies. This is probably the best test of the dearness or cheapness of provisions.

Food, Quality of, and whether abundant and cheap.

9. Although so much has been done for the European soldier in the matter of dress, the sepoy still suffers the martyrdom of the close-fitting cloth tunic. This is not the only objectionable article of dress ; the

Clothing.

trowsers also, but more especially the hard-leather boots, cannot be too strongly condemned. The boots, badly made after the European fashion, have no pretensions to fit the foot, and are the cause of many, if not most, of the ulcers on the foot one meets with in a Native regimental hospital. On the line of march, but more particularly on service in the field, when the sepoy has little time to soften the leather, they are the cause of very many men falling out, going to hospital, and being unfit for duty for some days. It has been suggested that sepoys should wear socks—a very good suggestion if the use of these boots is to be continued, but the sepoy cannot afford to purchase them from his present pay. The dress of the Belooch regiments is, in my opinion, much more suitable to the sepoy, and those who have seen it prefer that worn by the Punjab Native infantry. If the uniform of the European is to be worn by the sepoy, then let him have the loose patrol jacket : the

chest would expand more freely, there would be freer movement of the arms, and the sepoy could wear under it a sufficient amount of clothing to protect his chest from variations of temperature which prevail at different seasons and periods of the day. For boots I would recommend some uniform pattern of Native shoe or sandal.

10. During line-building the duties of the troops were very heavy; since the lines were built they have been the ordinary duty of the sepoy. The men have 15½ consecutive nights in bed. The duties have not had any appreciable bad effect on the health of the men. There is an excellent workshop in the regiment, and many of the men are really excellent carpenters, smiths, &c. There is also a soldier's garden, in which are cultivated, for sale, lucerne, plantains, and country vegetables; there is also a talimkhana. Encouragement is given to the men to excel in athletic sports by means of prizes given by the officers of the regiment annually for proficiency in wrestling, running, leaping, and vaulting; for these prizes there is a keen competition.

Lock-up Rooms and Cells. 11. There are 2 cells in the new quarter-guard, substantially built, dry, cool, and well ventilated.

12. A new hospital is being built at the new cantonment; the one at present in use is situated in the fort, and is a very good one. The ventilation is carried out by means of windows and doors, and by ventilators in the roof, and is, on the whole, satisfactory. The number of sick is rarely above what can be well accommodated in the hospital. The conservancy is by means of latrines in rear of the hospital; they are cleaned out daily, the excreta being removed in a cart to a considerable distance, nearly a mile from the hospital. They are kept free from smell by the use of McDougall's powder.

13. During the past year there were 363 admissions, 3 being for cholera, out of an average strength of 685; of these 4 died. Of the fatal cases 3 were from cholera and 1 from bronchitis. The ratio per cent. of admissions to average strength was 53. The average daily number of sick was 18·3. The percentage of treated to strength was 54·7; deaths to strength 6, deaths to treated 1. 6 men were sent before the annual invaliding committee at Belgaum, 5 of whom were passed.

14. From ague there were 87 admissions, all of them being of a mild type, and yielding readily to treatment. From rheumatism there were 18 admissions, all of them being the chronic form. Primary syphilis gave 4, secondary 2 admissions. 16 cases of bronchitis, 1 of them proving fatal. Diarrhoea gave 9 admissions; 2 of them were very serious; and, had not the term choleraic been forbidden, I should have returned them as such, there being extreme collapse and very considerable suppression of urine. The evacuations were of the colour of rice-water; both of them recovered. 64 cases of guineaworm were treated; this number compares very favourably with the admissions in 1874, when there were 142. I hope that the admissions in 1876 from this disease will be further considerably decreased, as the whole of the regiment will be able to use the well water in the new cantonment. Local injuries gave 33 admissions: 23 contusions of the lower extremities, 1 for fracture of the clavical, 1 for fracture of the humerus, 4 contusions of the upper extremities, 1 gun-shot wound of the abdomen. In the latter case the rifle was accidentally discharged on parade. The blank cartridge penetrated the substance of the liver for several inches from right to left; my little finger could be passed into the wound. The man lost a great deal of blood, and for several hours there was extreme collapse. Suppuration having taken place, 16 days afterwards the cartridge was discharged, and with careful watching and treatment the man returned to duty after 75 days' residence in hospital.

Causes of Mortality. 15. 3 out of the 4 deaths occurred from cholera; the other from bronchitis. All were Hindus.

Influence of Rainfall. 16. I do not think the rainfall is prejudicial to the health of those who can and will dress according to the dictates of common-sense.

17. There have been no epidemics. Cholera has prevailed to a considerable extent in this collectorate, and I was afraid the regiment was about to suffer from an epidemic of this disease when the 3 sepoys were attacked. Every precaution was taken, and the disease went no further.

18. Vaccination has been most carefully attended to, and there were 88—all successful.

19. I cannot say this is as satisfactory as it might be. Many of the men have a scorbutic taint, caused, in my opinion, from insufficiency of food, especially vegetables. In some instances I have found slight ulcers difficult to heal, and on my issuing lime-juice to the patients and directing the hospital orderly to observe the amount of vegetables consumed by them, a cure has been speedily effected.

20. Cinchonidine has been used as a substitute for quinine in the treatment of intermittent fever; but, as I have before observed, the cases were all of mild type. I am, therefore, unable to state decidedly my opinion as to its merits as compared with quinine.

21. The regiment has enjoyed fairly good health. Since it came here it has been subjected to very hard work—line-building. I would, in conclusion, invite particular attention to, 1st, the construction of another well near the hospital in the new cantonment; 2ndly, the sepoys' dress; and, lastly the present plan of enlistment and invaliding.

REMARKS BY DEPUTY SURGEON-GENERAL G. G. MAITLAND.

The new cantonment has been well selected on high open ground to the north of and about 2 miles from the fort and town. The hospital is in course of erection, and will be finished, it is expected, before the rains. The water-supply for drinking purposes is from three wells; but the medical officer states a fourth should be opened near the hospital, and in this opinion I concur. The general health and physique of the corps, considering the work and exposure they have gone through in building lines, is remarkably good. Now that a better supply of water is obtainable in the new lines, Dr. Ogilvie expects that dracunculus will be less frequent among the troops; but, so long as they are permitted to use and bathe in the Dharwar tanks, in one of which the worm abounds, I am afraid little improvement in this respect can be looked for.

NORTHERN DIVISION.

Average strength present during the year	8,547.1
Do. daily sick per cent. to the average strength ...	3.7
Ratio of mortality per cent. to the average strength ...	0.9

H. M.'s 3rd Regiment N. L. I.

AHMEDABAD.—In medical charge of Surgeon-Major C. JOHNSON ; Strength, 700.5.

- Location and Movement of Corps. 1. The corps has been at Ahmedabad during the whole year.
2. The soil is sandy loam merging into stiff clay and rich black soil. The rainfall during the past year was 23 inches and 47 cents, and well distributed over the whole season. A most unusual and heavy flood occurred in the Sábarmati River on the 22nd and 23rd September, flooding part of the lines, and laying the greater portion of camp under water. The natural drainage being so good, and the soil of such a porous nature, the water very quickly subsided, and no appreciable evil effects from malaria manifested themselves. The climate is not considered healthy immediately after the monsoon, fevers of malarial origin always more or less prevailing.
- Topography.
- Climate.
3. The lines situated on the south bank of the Sábarmati River, facing north and extending east and west, the streets running north and south, beautifully shaded with fine old trees, are broad and well ventilated. The huts are ventilated by openings under the eaves, quite sufficient. The sudder bazaar was entirely destroyed by the flood ; a new and roomy one is being built on the site of the old. The drainage is surface throughout, and seems easily kept in order and efficient.
- Lines.
4. There are 2 latrines of masonry, and with the dry-earth system of conservancy are quite sufficient for the wants of the regiment, and in every way satisfactory.
- Conservancy and Sanitary Arrangements.
5. The water-supply is abundant ; that in the wells is pure, but that of the river, more especially during the latter part of the hot season, becomes loaded with organic matter and other impurities. The sepoys and bazaar people are in the habit of using this latter water largely to the detriment of their health. If more wells were provided, the necessity of resorting to the river for water might be obviated.
- Water.
6. Food plentiful, of good quality, and moderate price. Fish, vegetables, and the ordinary country fruits in their season.
- Food.
7. The clothing is perfectly unfitted for Native soldiers. A loose serge tunic, such as worn by European troops, would be more suitable, and cotton clothing for the hot weather. The boots still remain a source of continual admissions into hospital from shoe-bite.
- Clothing.
8. The duties have been very severe during the past twelve months, allowing about 3 $\frac{3}{4}$ nights in bed on an average. The marching to and from the city guards alone would be sufficient exercise for the men, the distance being from 4 to 5 miles. Parades in addition to this, with musketry instruction, afford ample exercise. Some of the men go out shooting and fishing on the brigade holiday, and those who have a taste that way practise gymnastics in their leisure time in the lines.
- Duties, &c.
9. The lock-up rooms and cells are in every way fit for their purpose.
- Lock-up Rooms and Cells.
10. The hospital is a fine, well-ventilated, substantial building, shaded by trees, and situated to the north-east of camp ; it is on a good, substantial plinth, and is always dry and comfortable during the rainy season. The ventilation is all that could be desired, and there has been no over-crowding. The only improvement made, has been the building of a dead-house to serve for both the Native infantry regiments, separate cook-room and privy for the use of medical subordinates
- Hospital.

and their families, a separate ward for women and children, and another for contagious cases. The dry-earth system is carried out; the latrine is well built, and answers the purpose admirably. A sweeper is always in attendance. The hospital is supplied with excellent water from a well just outside the compound.

Sickness, Mortality, and Invaliding. 11. The average daily sick was 32.4, the percentage of treated to strength 179.1, deaths to strength 2.16, deaths to treated 1.21, and 40 invalided.

12. Ague gave the larger proportion of cases. Measles prevailed to some extent during the months of March and April, followed by rather a severe visitation of cholera, by which we lost 11 men out of 18 cases and 1 European officer.

Causes of Mortality. 13. Cholera 11, measles 1, meningitis 1, remittent fever 1, pneumonia 1.

Mortality according to Race. 14. Hindustani Hindus 3, Mahrattas 7, Mussulmans 4, and Punjabee Hindu 1.

Influence of Rainfall. 15. Ague prevailed, as usual, immediately after the monsoon.

Epidemics. 16. Measles and cholera.

17. Vaccinations 64, and re-vaccinations 22.

General Health and Physique of the Men. 18. The regiment has been rather unfortunate during the past year in having two epidemics to encounter; but, excluding this, the men have enjoyed good health for the most part. The work has been very hard, but it does not seem to have had any material bad effect. The admissions during the year were 1,226 against 893 in the year 1874.

Treatment of Disease when special. 19. The treatment of fever cases by quinine and arsenic was found to be the most efficient, and the hypodermic injection of chloral hydrate in some cases of cholera and in others entirely failed. Sulphate of cinchonidine was used extensively, and found of much less value in the treatment of fevers than quinine.

Special Observations. 20. The system of cutting half of the pay of recruits for their regimental necessities still exercises a bad effect on their health, more especially as it occurs at a time when they have to undergo a good amount of physical exertion in learning their drill, and are unable to afford to allow themselves sufficient nourishment to keep up their strength.

Native Medical Pupil how taught. 21. The Native medical pupil has been instructed in the office routine work, and has taken his share of clinical work as well as that of the dispensary. Instruction has been given from time to time at the bedside.

Observations on the Mean Level of the Sub-soil Water.

Locality or Designation of Well.	Date and Hour of Measurement.	Distance of Sub-soil Water below surface of Ground.		Rainfall from Date of last Measurement.
		Feet	in.	
Front of the hospital.	15th February 1875 at 5 A.M....	34	1	0 84
	15th March do.	34	7	...
	15th April do.	35	7	0 4
	15th May do.	36	8	...
	15th June do.	36	4	1 82
	15th July do.	35	7	4 28
	15th August do.	35	1	6 98
	15th September do.	35	0	4 25
	15th October do.	32	4	4 44
	15th November do.	33	4	0 82
	15th December do.	33	10	...

REMARKS BY DEPUTY SURGEON-GENERAL D. WYLLIE, M.D.

This is the only corps of those in the Northern Division that shows increase of sickness as compared with previous year—a result attributed by the medical officer to heavy duties, but possibly also in part due to prolonged residence. Sanitary surroundings good; huts supe-

rior, with eaves ventilation ; water abundant and good ; food cheap ; masonry latrines in use throughout with dry earth—a satisfactory arrangement. Hospital accommodation very suitable, and out-offices complete, excepting the want of a separate contagious ward. At my frequent inspections in course of the year I invariably found all arrangements for the sick satisfactory. Vaccination was duly carried on among the men and their families. Dr. Johnson remarks on the system of cutting the pay of recruits for their regimental necessities ; this is a matter that appears to me to deserve attention.

H. M.'s 1st Squadron, 1st Lancers.

BARODA.—In medical charge of Surgeon-Major H. A. LEWIS ; Strength, 158·1.

1. The squadron has been stationary since the 21st January 1875. On the 28th April 35 men marched into the city, and remained there until 1st July : since then the squadron supplies, weekly, for the city guard 16 non-commissioned officers rank and file.
Location and Movement of Corps.
2. The result of the conformation of the country and the nature of the soil is, that during the hot months the heat is great, oppressive, and moist, and after the rains malarious fevers abound, as well as bowel-complaints, chest-affections, and ophthalmia.
Climate.
3. The men on their arrival were encamped near the Native infantry lines until the 15th of March, when they occupied two rows of the huts situated on the left flank of the 22nd Native Infantry lines. The latrines belonging to the 22nd regimental hospital are used. The sanitary arrangements in the lines are properly conducted. The water-supply is obtained from the Native infantry wells. The meat-supply is abundant, but both beef and mutton are indifferent in quality. There is a variety of country vegetables to be obtained in the bazaar.
Lines, &c.
4. The duties consist of parades and guard-mounting. They were heavy at first, but they have not affected the health of the men. Number of consecutive nights in bed, 7. The sick are treated in the 22nd Native Infantry hospital.
Duties.
5. There were 223 admissions from all causes ; 91 of the number were from fevers, chiefly ague. Deaths none. 3 men were invalided, and 1 was discharged by court-martial.
Sickness, Mortality, and Invaliding.
6. The causes of sickness were, chiefly, fevers, from which there were 91 admissions. 41 cases of contusions were treated during the year, some of a severe nature, the result of falls and kicks from horses ; others were often the cause of shoe-bites. There were 9 admissions from catarrhal ophthalmia, all of which were mild in their symptoms. 9 cases came under treatment for subacute dysentery. I found small doses of ipecacuanha, combined with a few grains of Dover's powder, to be very useful in the cure of these cases.
Principal Causes of Sickness.
7. 9 children were vaccinated in the lines.
8. The health of the men is, on the whole, fair, and their physique good.
General Health.

REMARKS BY DEPUTY SURGEON-GENERAL D. WYLLIE, M. D.

The squadron arrived from Poona at the beginning of the year, and has since occupied part of the Native infantry lines. The huts are old ; cubage only 650 feet. Water-supply ample, and of fair quality.

Hospital inspected 5th January. Establishment efficient ; building (originally a school-room) is that now used by the 22nd Regiment N. I. It is in poor repair, and the accommodation is barely adequate in autumn, when ague is very widely prevalent. Vaccination among the families was attended to.

H. M.'s 9th Regiment N. I.

BARODA.—In medical charge of Surgeon H. P. ROBERTS ; Strength, 648·3.

1. The regiment has been stationed at Baroda during the greater portion of the year. A detachment of 350 men was furnished for a guard in the city from the 28th April till the middle of May ; since that time a detachment, varying in strength from 50 to 100 men, forms the city guard every alternate week. The regiment was kept for some months under canvas, and located to the west of the cantonment.
Location and Movement of Corps.

2. The new lines, which were occupied in June, are situated in one corner of the general parade-ground to the north of the camp; they consist of 16 pendalls, arranged in two blocks of 8 each—the blocks being divided by an interval of 150 feet. The pendalls are 180 feet long, 16 feet wide, and 50 feet apart; they are constructed with good country teakwood posts, dammered throughout, embedded in footings $2\frac{1}{4}$ feet deep. The plinths are made of earth, well rammed and consolidated. The floors cow-dunged; the walls of wattle and daub panels, with an open space of 1 foot under the eaves for ventilation; the doors bamboo tattees, with junglewood frames. The cubic space per man is 472 cubic feet; the roof, single tiled, is of junglewood, the ridge set in lime, and the eaves project 2 feet. The lines are drained by trenches, which are connected with the general drainage system of the camp. The regimental bazaar is in the lines, to the east. The nearest village is about a mile distant, in a north-easterly direction. There are no others nearer than 2 miles. There is only one tank, distant some 300 yards, and this is principally used by the dhobies. The Wishwamitri River runs at about half a mile to eastward of the lines, and is frequented by the men for bathing and other purposes

3. The trench system of latrines is in use.

4. The water-supply is obtained from four wells, which have been sunk one at either corner of the lines. The quality is good; hitherto there has been no apparent imperfection.

5. Compensation is allowed for grain and firewood; ghee, dhal, and flour are dear; rice is plentiful.

6. The duties do not seem to be too severe. There is very little amusement of any description: a few men only practise field sports.

7. The quarter-guard and cell have been only recently completed. The cubic space of the quarter-guard is 2,229·8 feet; of the cell, 722·9 feet.

8. There have been no route marches since the regiment arrived. The wing moved into the city of Baroda on the 28th April, and on its being withdrawn (during an epidemic of cholera), it was marched out under canvas for some weeks, until the cholera had disappeared.

9. The ventilation of the hospital is good, and there has been no over-crowding. A bath-room and a separate ward have been recommended to be built, and the matter is now under consideration. The quarters for Native pupils and 2nd class hospital establishment are deficient. There is no dead-house. The hospital latrines are situated a few yards behind the hospital: there are 12 pans, 6 for men and 6 for women; these are disinfected daily by the hospital sweeper. The water-supply is good and sufficient, drawn from a well outside the compound, the only one available.

10. The total admissions have been 481; the deaths in hospital 11, out of hospital 6. 25 men were invalided, and 1 was discharged by court-martial.

11. The principal causes of sickness were—ague 175, dysentery 35, contusion 32, chronic rheumatism 28, bronchitis 23, and conjunctivitis 122.

12. The deaths in hospital were—from cholera 8, tetanus 2, and continued fever 1; out of hospital, 3 in the city guard from cholera, 1 from ague, 1 from drowning, and 1 from lung disease. One of these was a Mussulman; all the rest were Hindus. Thus, in hospital, Hindus 11; and, out of hospital, Hindus 5 and 1 Mussulman.

13. An epidemic of cholera occurred in Baroda during parts of the month of May and June. I understand that the cholera appeared in the wing which was forming at the time a portion of the city guard; it was marched out under canvas, and returned after the cholera had disappeared—a period of about 3 weeks.

14. Vaccination has been performed partly by myself and partly by the public vaccinator from the city. Of 39 vaccinations 4 were unsuccessful.

15. The physique of the men is rather below the average, and the last 4 years in Guzerat seems to have tested their health considerably.

16. The result of the exhibition of cinchonidine would not lead me personally to place much reliance on it in severe cases of intermittent fever, and in remittent the use of it had to be abandoned; indeed, the only cases in which it might have been efficacious were those in which the fever was slight, and in those, after the administration of cinchonidine in 4-grain doses 3

Treatment of Disease when special.

times a day for 2 or 3 days, the fever subsided. Those were cases in which fever had only occurred one day previous to admission; the attacks recurred at regular periods, were of short duration, and, as well as could be estimated, mild. As I remarked in the annual report last year, at page 270, there appears to be no treatment so efficacious as the subcutaneous injection of the neutral sulphate of quinine, and I adopted it here with great benefit; but I am now inclined to believe that the injection, subcutaneously, of so large a quantity of the quinine solution as 20 or 25 minims in some peculiar cases may lead to untoward results, and that the hypodermic injection of quinine, made soluble by sulphuric acid, alone should be the method adopted. In two cases, one of remittent and one of intermittent fever when the temperature of the patients stood at 105° F., the cold-bath treatment appears most decidedly to have saved life. I have tried recently the administration of aconite in the severe headache so often accompanying malarious fever, and given in 2-minim doses every 15 minutes for one hour and half; it certainly has in several cases entirely relieved that symptom.

17. I have endeavoured to give the assistants and Native medical pupil the simplest instruction and information.

REMARKS BY DEPUTY SURGEON-GENERAL D. WYLLIE, M.D.

Health was generally very satisfactory; but the year was eventful in the appearance of epidemic cholera in May, of which 12 seizures occurred with 8 deaths. There were also 2 deaths by tetanus, at the beginning of the cold weather, in men debilitated from the effects of ague, and 1 by continued fever. Inspected the hospital January 4th.—Accommodation for sick good and ample for all ordinary requirements; no dead-house, and no contagious ward. Servants' quarters incomplete; otherwise all satisfactory. Vaccination was duly carried out among the families.

H. M.'s 22nd Regiment N. I.

BARODA.—In medical charge of Surgeon-Major H. A. LEWIS; Strength, 662·2.

1. The regiment has been stationary during the year, and there were no detachment duties; but, owing to some political disturbance in the city of Baroda on the 28th April, a wing marched there, which was reduced in strength on the 5th May by 150 men, and the remainder helped to guard the city until 1st July, when they marched into camp.

2. The result of the conformation of the country and the nature of the soil is, that during the hot months the heat is great, oppressive, and moist and after the rains malarious fevers abound, as well as bowel-complaints, chest-affections, and ophthalmia.

3. No changes have taken place in the lines since the last report; they are kept clean and in good order. During the rains they are drained by trenches which are connected with the general drainage system of the camp. An estimate plan for the building of new lines has been sent in for the sanction of Government, as the present lines are extremely old and ill-ventilated.

4. The trench system of latrines is still adopted near the lines; but, owing to the limited extent of ground available for the purpose, I am of opinion that this system is very unsatisfactory. The trenches are about 200 paces from the hospital, and the nearest well is distant from it about 100 yards. When northerly winds prevail, the trenches become a perfect nuisance to the sick and to all the hospital establishment.

5. The water-supply is derived from numerous wells in camp, but only a few of them contain potable water. Four new wells were dug, one at each corner of the 9th Native Infantry lines. The water is considered good. Its quality, I find, to be similar to the water in the wells belonging to the 22nd Native Infantry lines. It contains chlorides, lime, carbonic acid, and a trace of organic matter. The water of the River Vishwamitri to the east and of a tank to the north-west of camp is chiefly used for watering horses and cattle. Meat is abundant: mutton is fair, but beef is often inferior in quality. Vegetables are chiefly country varieties, and are sufficient in quantity. There is a station garden where English vegetables are to be had during the cold season.

6. The duties have had no bad effect on the men's health: the average number of consecutive nights in bed has been 5·4. The amusements have consisted in athletic sports and games: there is a talim-khana attached to the regiment. Trades, such as tailoring and shoe-making, are encouraged.

7. The cells in the quarter-guard are in good order, and well ventilated.

8. The hospital stands some 200 yards from and to the east of the lines. The building was formerly the regimental school; it has a single ward $96\frac{3}{4}$ feet long, 22 feet wide, affording accommodation for 28 sick, and giving each man a cubic space of 2,800 feet; it is well lighted and ventilated. A spacious verandah runs along the east and west sides of the building. To prevent overcrowding during the fever season these verandahs were used for the patients. They accommodate, without any inconvenience, 16 beds. At each corner is a room used, respectively, as the dispensary, store-room, and quarters for a hospital assistant and Native medical pupil. The flooring of the ward is of red brick of a soft and crumbling nature. On the eastern side of the hospital, and some 30 paces only from it, is the small village of Gowleempoora, which is not in camp limits; the villagers are chiefly herdsmen, cultivators, and brick-makers. At first it was in a most filthy state on account of the number of cattle kept there, but strict measures are now taken to keep the place clean. The brick-making is now carried on at some distance from the hospital. There is accommodation for 12 people only, belonging to the hospital establishment, with their families. Wards for the treatment of contagious or any special diseases and a dead-house are required. The latrines are conveniently situated; the iron pans in use are emptied and cleaned twice a day; the excreta are carted away to some distance out of camp and burnt. The hospital water-supply is derived from wells near the regimental lines.

9. There were 779 admissions this year, being less by 391 than last year. The chief admissions were fevers, chronic rheumatism, catarrhal ophthalmia, contusion and chest-affections. Exclusive of cholera cases there were only 2 deaths. 30 men were invalided and 3 were discharged by court-martial. The most important cause of sickness has been malaria. Of fevers there were—malarious fevers 274 admissions, febricula 48, eruptive fever 5,—total 327. There were 44 admissions from chronic rheumatism, 51 from catarrhal ophthalmia of a mild form, 45 from diarrhoea, and 64 from contusions, chiefly shoe-bites. There were 14 cases of syphilis, which occurred in young sepoy, in every case contracted in the city, where the men had been on duty. 7 deaths occurred from cholera, 1 from enteritis, and 1 from debility. In hospital, Hindus 8, Mussulman 1, died; and, out of hospital, Hindus 3 and Mussulman 1.

10. 32 inches 91 cents of rain were gauged during the year, which is about the average quantity for the last 10 years, but less by 6.79 inches than the last year's fall. The hot weather commenced at the beginning of May, and was extremely oppressive in camp. October, too, was a trying month for both Europeans and Natives.

11. There were 14 cases of cholera treated with 7 deaths. On the 14th of April the first outbreak of cholera in the city was reported, and on the 28th idem a force, consisting of both European and Native troops, marched into the city to quell some disturbance there. The Native portion of the troops occupied several small and ill-ventilated rooms in the palace. After the European troops had left the city some of the sepoy went into the Nazar Bagh Palace, where the accommodation was superior. Every precaution was taken to prevent the spread of the disease amongst the troops by having good water supplied to the men, their rooms cleaned, disinfected, and fumigated; but, 3 days after the occupation of the city, 2 cases of cholera were reported, and on the 4th May a third case occurred; they all proved fatal. They were treated in the state hospital, which is situated outside of the city. For the convenience of the Baroda Force a temporary hospital was established in the Guicowar's "gold-gunshed", which is placed in the centre of a clean and well-ventilated compound near the Nazar Bagh. On the 5th May the Native part of the force was reduced by 300 men, who marched to a cholera camp near the village of Chance, which is distant a mile from cantonment. At this camp there were 6 admissions of men belonging to the regiment with 4 deaths between the 5th May and the 1st July. When the force left the city, only 4 men of the regiment came under my treatment in the city hospital for cholera; they all recovered.

12. There were 54 children vaccinated in the lines with success.

13. The general health of the regiment has been, on the whole, satisfactory, and the physique of the majority of the men is good.

14. The medical pupil has been carefully instructed during the year.

REMARKS BY DEPUTY SURGEON-GENERAL D. WYLLIE, M.D.

The hospital was inspected on 7th January. Accommodation tolerably good, but was scarce adequate during autumn. The building requires repair, and is objectionable from being on the extreme confine of camp, and only some 30 paces from a Native village. No dead-house or separate contagious ward. The medical officer complains of the proximity of the trench latrines, distant some 200 paces, which become a nuisance to the sick when northerly winds prevail.

H. M.'s 2nd Squadron, 2nd Regiment L. C.

RA'JKOT.—In medical charge of Surgeon A. J. LEGGATT; Strength, 146.

1. This squadron has been stationed in Rájkot for the last year, and no detachment was sent out.

2. The sub-soil water and drainage has shown no special effects on the health of the men.

3. There has been no change in the lines since last report. The conservancy still calls for remark: the latrines are much too distant from the lines, and are not kept properly clean. This, however, is inevitable, as there is only one conservancy cart for the whole of camp, and, consequently, the work cannot be properly carried on. The lines themselves are not sufficiently often visited for the purpose of cleaning the privies. The stable refuse is either sold or burnt; during the time of the prevalence of cholera in the city it was always burnt between that part and the lines, and may have helped in a measure in keeping the camp so free of that disease.

4. The water-supply is obtained from wells. During the whole year there has been a great scarcity of it, and at present nearly all the wells are dry. The utmost that can now be managed, is to procure drinking water from them. All water for purposes of ablution must be brought from the river, which is distant about half a mile. Food has been dearer during the past year, more especially vegetables, which have been very difficult to procure, and it is in consequence of this that many of the cases which have been of late admitted had a scorbutic taint. The clothing of the men is good, most of the material being obtained from England. It consists of a forage cap, blue-serge coats, and dark-blue breeches or trowsers with long boots. The only article objectionable is the latter, which both admits the rain and retains it: again, when dismounted, they very much impede his movements, and in the present new system of dismounted drill it is important that the sowar should not be hampered. A good, serviceable ankle-jack, with a pair of stout leather or canvas leggings, would not only be more serviceable, but infinitely more comfortable to the wearer, and cheaper, which is by no means a small consideration to a man who has to pay for all his own kit.

5. The duties have been light, and have exerted no prejudicial effect on the health of the men. Some few devote their spare time to field sports, but by far the larger number pass it in loitering either in their houses or the bazaar.

6. A station dead-house is in course of erection attached to this hospital. The hospital latrine is in close proximity to the well, and should certainly be removed, as it is many years since it was erected, and the soil is getting daily more and more impregnated, and, consequently, the purity of the water is likely to be affected. There has been no over-crowding. The conservancy of the hospital is attended to as well as is possible. The latrines should be visited oftener and more regularly by the filth-cart, but that is impossible with only 1 cart to carry on the conservancy of the whole station. The hospital water-supply is procured from a well close to the latrine. The well is a good one, but at present contains but little water,

7. The average strength of the squadron has been 146, total admitted 119, total Sickness, Mortality, and Invaliding. treated 124, total deaths 2—1 in hospital and 1 on parade. The percentage of treated to strength was 84·93, of deaths to strength 0·68, of deaths to treated 0·81, and the average daily sick 3·9. 3 men were invalided after serving their full time; 1 was discharged from unfitness for further service.

8. The health of the men has been good during the year. The admissions, though slightly higher, do not give accurate data for comparison with the health of the 3rd Squadron last year, as during that year 22 men were always absent at Drappa on detachment duty. Ague and febricula give a much smaller number of admissions than ague during the preceding year for the 3rd Squadron. Cinchonidine has been tried only once to show that, as a medicine to arrest ague when well developed, it is utterly useless; in slight cases of febricula it is useful, but these cases can be treated with quite as satisfactory a result with saline purgatives and a little rest. As a preventive from ague I have found cinchonidine to be nearly useless. Rheumatism is also less than during the preceding year. In diseases of the intestines alone there is a marked increase: 18 admissions for dysentery, 6 for diarrhoea, as against 4 and 1. This may be entirely accounted for by the scarcity of water; and, consequently, water of an indifferent quality, such as the river-water, may have been used by the men. Contusions give a large number of admissions (20), most of them cases of kicks by horses or falls on parades. 2 deaths took place: a sowar from

jaundice; the other was seen to fall from his horse, and was found dead. On *post-mortem* examination Dr. Batty found the semilunar valves almost completely converted into cartilage, and immediately above and behind them, in the aorta, there was an ulcer of about the size of 2-anna piece. Of those who died, one was a Mussulman, the other a Mahratta.

Influence of Rainfall. 9 The rainfall was 17 inches 86 cents.

Epidemics. 10. Cholera has been prevalent in the city, but no cases occurred in the squadron.

11. There were 23 primary vaccinations and no re-vaccinations.

12. The health of the squadron has been fairly good during the year. The physique of the men is good

13. It may be said the lines, hospital, and latrines are good, and kept clean and in good order. The supply of water, though good in quality, is insufficient in quantity, and likely to become more so during the present year. The health of the men has been good, but the mortality has increased.

Resumé.

Observations made at Rájkot on the Mean Level of the Sub-soil Water in each month of the year.

Locality or Designation of Well.	Date and Hour of Measurement.			Distance of Sub-soil Water below Surface of Ground.	Rainfall from Date of last Measurement.
Well is situated in the compound of Bungalow No. 32.				Feet in.	In. cts.
	23rd February 1875,	at 5 A.M.	... ..	15 2	...
	15th March	do.	... ..	14 10	...
	15th April	do.	... ..	15 7	...
	15th May	do.	... ..	17 4	...
	15th June	do.	... ..	22 6	0 46
	15th July	do.	... ..	24 4	4 52
	15th August	do.	... ..	26 4½	6 0
	15th September	do.	... ..	22 6	3 19
	15th October	do.	... ..	25 7½	2 26
	15th November	do.	... ..	29 11	...
	15th December	do.	... ..	30 11	0 72

REMARKS BY DEPUTY SURGEON-GENERAL D. WYLLIE, M.D.

The lines are satisfactory, and the huts have ample cubage. Water-supply sufficient, but likely to be short in current year, owing to small rainfall. The conservancy arrangements, as explained by the medical officer, at times inadequate for prompt service.

Inspected the hospital, 9th February. The accommodation is ample and good, and its arrangements are all satisfactory, excepting the latrine, which should be removed from the vicinity of the well, as mentioned in the report.

No. 1 Company, Native Artillery.

RA'JKOT.—In medical charge of Surgeon A. J. LEGGATT; Strength, 124.

Location and Movement of Corps. 1. The Guzerat Mountain Train and No. 1 Company, Native Artillery, has been stationary during the year in Rájkot.

Effects on Climate. 2. The climate has not been much affected by either the water or drainage.

3. During the past year new lines, on the standard plan, have been begun for the company. Two blocks and three separate houses for Native officers have been completed; they are of a superior description, and in all respects satisfactory. The huts are back to back, and in each block there are

11, making a total of 44 rooms. The superficial area for non-commissioned officers' quarters is 130 square feet, cubic space is 1,350 square feet; and in gunners' quarters 108 square feet, while the cubic space is 1,392½ feet. The lines are well built with closed-in verandahs, and have a place for washing in each hut. The ventilation, arranged with tiles in the walls, is but little used, the spaces being generally filled up by the owner; consequently the only ventilation is by the door. The lines situated to the north of the sudder bazaar, are about half a mile distant from the city; no villages are situated nearer than 3 miles off. The drainage is surface and natural. There are no tanks in the vicinity.

Conservancy and Sanitary Arrangements.

4. There has been no alteration in the conservancy during the past year.

5. The water-supply is

Water-supply.

very scanty this year, owing to the scarcity of rain. The water, however, is good; all water for purposes of washing has to be brought from the lines. One of the wells is being deepened.

Food.

6. Articles of food have been rather dear, and it has been almost impossible to procure vegetables for a great part of the year.

Duties.

7. The chief duties have been line-building and the ordinary battery duties, which have not proved prejudicial to the health of the men.

Lock-up Rooms and Cells.

8. There is a lock-up room belonging the batteries' guard. Its superficial area is 150 square feet, and cubic capacity 1,687·5 cubic feet.

Over-crowding.

9. There has been no over-crowding in hospital.

Accommodation and Defects.

10. A new dead-house is in process of construction, and will shortly be finished. Better accommodation for the hospital assistant is required, as the place in which he has to live, is not fit for the purpose; also accommodation for the hospital servants, who are obliged to live in the verandah of the hospital.

11. The hospital conservancy is

Conservancy.

carried out fairly, but the latrines should be visited more frequently and regularly; but this it is impossible to expect with only one cart for the whole of the camp.

12. The water-supply is good, but is in great danger of contamination owing to the

Hospital Water-supply.

close proximity of the hospital latrine, the site of which should be moved.

13. The health of the men has been very good: only 105 were admitted as compared with 158 in 1874. 1 death occurred from pneumonic phthisis. No deaths in 1874. 5 men were invalided—3 with pension, 2 with gratuity. 2 were rejected by the general invaliding committee. The average daily sick has been 2·6 as compared with 3·45 in 1874.

The treated to strength, 85·48 against 118·79 in 1874.

Deaths to treated: 94 do. none do.

Deaths to strength: 80 do. do. do.

Ague and febricula give the largest total of admissions. Dysentery gives 6 treated against 2 in 1874; none of the cases were very serious. Mania gave 1 admission—a driver who was invalided at the last general committee.

14. The principal causes of sickness may be said to have been purely climatic; as also the same may be said to have been the cause of the 1 death—a Hindu by caste.

15. The rainfall has been very small, only 17·86 inches for the whole year, the average being about 26 inches. The smallness, however, of the rain-

Rainfall.

fall has not proved prejudicial to health, as it was spread out over a long period, and but few very heavy falls occurred, so that the water soaked into the ground, and did not run to waste as is so often the case. It is likely, however, to produce sickness eventually, as the supply of drinking water is failing fast.

Epidemics.

16. There has been no epidemic among the men of the battery.

17. 17 children were vaccinated, and 2 men re-vaccinated during the year.

Observations on the Mean Level of the Sub-soil Water.

Locality or Designation of Well.	Date and Hour of Measurement.	Distance of Sub-soil Water below Surface of Ground.	Rainfall from Date of last Measurement.
The well is situated close to the site of the old Artillery Lines, to the right rear of the Commissariat Office.		Feet in.	In. cts.
	24th February 1875, at 5 A.M.	20 8	...
	15th March do.	22 0	...
	15th April do.	22 0	...
	15th May do.	25 8	...
	15th June do.	26 5	0 46
	15th July do.	24 9	4 52
	15th August do.	24 3	6 0
	15th September do.	25 0	3 19
	15th October do.	25 8	2 26
	15th November do.	26 2	...
	15th December do.	26 2	0 72

REMARKS BY DEPUTY SURGEON-GENERAL D. WYLLIE, M.D.

Health was very satisfactory throughout. Sanitary surroundings generally satisfactory, and new lines on standard plan are being constructed. The sick were treated in the same hospital as the squadron of 2nd Cavalry and Wing 7th Regiment. The accommodation is ample and good. Nothing particular occurred. Vaccination was duly attended to.

Head Quarter Wing, H. M.'s 7th Regiment N. I.

RAJKOT.—In medical charge of Surgeon W. A. BARREN; Strength, 247.

1. The wing has been stationed at Rájkot since 18th January 1873. A detachment of 88 Location and Movement of men proceeded to Dwárka on the 7th of January last, where it Corps. has been located ever since. No other movements have taken place; except on escort duty. The left wing with 2 European officers has been stationed at Panna during the period under review; also one company of the right wing under an European officer at Dwárka.

2. The conservancy and sanitary arrangements have been well and carefully attended to.

3. The rainfall during the past year has been very scanty; only 17 inches and 14 cents have been registered, the average rainfall for past years being about 27 inches and 20 cents. The water in the various wells is now very low, and it is anticipated that, long before the end of the hot weather, they will be completely dry. If such happens, the troops in the cantonment will have to be moved out and encamped close to the river in the vicinity of Rájkot, and about 2 miles from it, where there is always a fair supply of pure water. The water from that portion of the river which skirts the native town cannot be used for domestic purposes, as it is loaded with organic matter, principally of animal origin, from the dry water-courses on both banks of the river being used for purposes of nature by the townspeople. The hospital water-supply is from a large well close by; the water from it is good. There is one great objection, and which may one day prove a source of great danger to the persons compelled to use this well, the hospital latrine is situated only a few yards from it, being placed between the prevailing wind and the well. I remarked more fully upon this great evil in my last annual report, and suggested the immediate removal of the latrine to another site; but nothing has since been done with regard to my advice upon the subject.

4. The number of admissions from all causes into hospital was 284, and the total treated 291. The average daily sick was 6·8, the percentage of treated to strength 117·31, deaths to strength 1·62, and deaths to treated 1·37. Ague is always most prevalent in the months of July, August, September and October; there has been nothing remarkable in the cases admitted under the above heading. The cases of febricula were of the mildest form, sulphate of cinchonidine was always found sufficient. The cases of ague were, as a rule, mild, and the majority were treated with sulphate of cinchonidine. A case of abdominal aneurism was admitted on the 2nd July. The subject, a private aged 27, was on orderly duty at the commandant's bungalow during the night of the 1st and early morning of the 2nd July last. Previous

to going on duty he complained to a comrade that he felt unwell, and had an acute pain in the small of the back: his friend suggested he should go to hospital; he replied "I will be all right tomorrow." On the morning of 2nd, at 5-30, he was sitting in a chair under the porch of the bungalow, when he suddenly became giddy and faint, and fell out of the chair to the ground. I saw him where he lay at 6 A. M.; he was then semi-conscious, and was supported with his body bent forwards; his abdomen pressed firmly against his flexed thighs and knees. He was deathly cold and pallid, with a cold clammy perspiration over his face, neck, and body; his pulse was small, weak, and rapid; he made signs which indicated that the cause was in the abdomen high up. On placing my hand over the upper part of right side of abdomen there was a distinct, loudly, pulsating tumour. I had the man conveyed to hospital, and had cold applications kept constantly applied to the part; he was so faint I had to give him stimulants almost every 10 minutes; he died at 4 P. M. the same day. On *post-mortem* examination, made 2 hours after death, the following notes were recorded:—Body in good condition, slight ecchymosis of both lungs, otherwise healthy. About $1\frac{1}{2}$ ounces of serum in the pericardium; heart slightly fatty, otherwise healthy; cavities almost empty. Abdomen, peritoneum looked as if dyed with blood; cavity of abdomen, especially on left side, filled with huge clots and fluid blood; left lobe of liver lesser curvature and œsophageal, end of stomach and left kidney united by a large mass of fibrinised blood; on removing the liver, stomach, and intestines, the aorta showed, immediately after its escape through the aortic opening in the diaphragm, a large aneurism which had burst. Remittent fever gave only 1 admission; first admitted with ague of the quotidian type on the 25th September. Notwithstanding large doses, first of sulphate of cinchonidine, then quinine, the daily periodical attacks increased in duration and intensity until the 6th October, when the fever became purely remittent and of a typhoid character; the man died on the 13th October. In the month of December a few interesting cases were under treatment at the hospital, viz., 1 of asthma without any evident heart complication, in which the distressing symptoms were relieved by night draughts of the tincture of belladonna (minims xx in each ounce of water), and drachm doses of ipecacuanha wine three or four times during the day. The recruit, who presented all the symptoms of a severe attack of acute rheumatism, made a very good and rapid recovery under the bicarbonate-of-potash treatment. 1 case of scurvy threatened to prove fatal; but with a liberal supply of fresh meat, lime-juice, and stimulants, nearly every unfavourable symptom has disappeared. On the 2nd of December, when Surgeon R. H. Batty held the regiment, Private Amrootrow Miray was admitted into hospital with symptoms of pleurisy over the right chest. The conclusion arrived at after the subsidence of the above symptoms, was that the patient showed signs of approaching destruction of the tissue of the right lung; he had a persistent, troublesome, dry cough, and daily attacks of hectic fever. On the 29th, about 4 o'clock in the afternoon, he was suddenly seized with a violent fit of coughing, which terminated with a sudden gush of a large quantity of pus resembling that found in an hepatic abscess and syncope. This slightly offensive matter continued to ooze through the mouth and nostrils till 5-30, when he died. At the *post-mortem* examination, about 12 hours after death, a large abscess was found, involving $\frac{3}{4}$ ths of the substance of the right lung, the contents of which were lung *debris*, livery-looking pus, and an unattached, free, globular cyst, about the size of an ordinary orange. The cyst had no attachments or adhesions of any kind; its wall was smooth and of a creamy white colour, soft in some parts, firm and elastic in other portions. To the naked eye it showed two easily separable coats, the external one being rather firm and of a fibrous structure. The longitudinal and transverse fibres were most beautifully shown in some of the specimens under a powerful microscope. By the $\frac{1}{2}$ -inch glass, tuberculous deposits were easily recognised between and on some of the longitudinal fibres. The internal coat, which was soft and semi-transparent under the $\frac{1}{2}$ -inch glass, displayed the air-cells of the lung, the epithelial lining of the cells, the fibres of elastic tissue, and the very fine, delicate membrane which forms the cell-wall, to perfection. I am sorry I have not the time to give a correct drawing and further details of the microscopical appearances presented by sections of the cyst, which, to my mind, is purely of lung origin. No hydatids could be detected in the contained serous fluid. In the substance of the left lung were miliary tubercles, and on its surface a few blebs about the size of a coriander-seed. The liver was healthy. Contusions of the lower extremity, chiefly due to badly-fitting shoes, gave 29 admissions. The cases of debility 12, the majority of which, due to length of service and old age, have been invalided. There were only 3 admissions from dysentery. The febrile, bowel, and hepatic symptoms were easily overcome by the ipecacuanha treatment.

5. There were 5 deaths during the year, 4 in and 1 out of hospital: the first from Mortality. exhaustion, due to extensive syphilitic ulceration of the penis and scrotum, which the patient had concealed for several months; the second, from rupture of an abdominal aortic aneurism; the third, from suicidal drowning; the fourth, from remittent fever; and the fifth, from abscess of the lung. 28 men were sent before the invaliding committee on account of old age and length of service; 3 of these returned to duty. The deaths were—3 Hindus and 1 Mussulman in hospital, and 1 Hindu out of hospital.

Epidemics.

6. There were no epidemics.

7. Vaccination was carried on regularly. 29 successful primary, and 45 re-vaccinations, in which only 20 gave good results.

The monthly Rainfall from 1st January to 31st December 1875 at Rájkot.

	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Year.
1875	...	0.80	...	...	0.30	3.55	3.66	2.71	6.12	...	...	0.72	17.86

Observations on the Mean Level of the Sub-soil Water.

Locality or Designation of Well.	Date and Hour of Measurement.	Distance of Sub-soil Water below Surface of Ground.	Rainfall from Date of last Measurement.
Well is situated in the compound of Bungalow No. 32.		Feet in.	In. cts.
	24th February 1875 at 5 A.M.	15 2	...
	15th March do.	14 10	...
	15th April do.	15 7	...
	15th May do.	17 4	...
	15th June do.	22 6	0 46
	15th July do.	24 11	4 52
	15th August do.	26 4½	6 0
	15th September do.	22 6	3 19
	15th October do.	25 7½	2 26
	15th November do.	29 0	...
	15th December do.	30 11	0 72

REMARKS BY DEPUTY SURGEON-GENERAL D. WYLLIE, M.D.

Health was fairly maintained. Sanitary surrounding generally satisfactory, and, although the men's huts are only of 612 cubic feet each, they have not at any time been unhealthy. Hospital, inspected February 10th, has good and sufficient accommodation; establishment and equipment adequate; the only objectionable point in existing arrangements in the proximity of the latrine to the well. Vaccination was duly carried on among the men and their families.

H. M.'s 28th Regiment N. I.

RA'JKOT.—In medical charge of Surgeon A. J. LEGGATT; Strength, 551.2.

1. During the past year the regiment has been stationary. There has been a detachment at Barda Choki. The detachment at Dwárka returned to Rájkot in February, having been relieved by a company of the 7th Regiment. The company, of which the detachment at Barda Choki is composed, is stationed for 8 months in the Barda Hills, which is, perhaps, the most unhealthy place in Kattywar; during the 4 months of the rainy season it is stationed at Porbandar, a large town situated on the sea-coast, where the men are put up in pendalls—an inadequate protection against rain and cold—or else in tents, which are, if possible, worse. The

Location and Movement of Corps.

Pendalls,

consequences of these are a very high mortality and injury to the constitutions of the men, who, on their return, are unfeebled and emaciated to a very great extent. The systems of many of them are so saturated with malaria that they never again lose it, or regain their health; many suffer from greatly enlarged spleens, and all of them are rendered almost useless for active service.

2. During 5 months in the year the permanent latrines are in use, and at this time an extra conservancy cart is employed for the purpose of cleaning them; these latrines are well built, and situated about 200 yards to the N. W. of the lines. In the remaining months trenches (enclosed by tatties) are dug on a piece of ground to the north of lines, about 300 yards from them. These are not popular with the men, but work well; there is not much smell, and fresh trenches are dug every third day.

3. The water-supply for drinking purposes is dependent entirely on wells; of these there are 9 public wells within cantonment limits, 4 of which only are of any use, 2 of them being situated in the lines of the regiment. Of these 2, 1 is considered justly to be the best well in camp; it has never been known to run dry, and the water is very free from organic impurities. An analysis was made of it during the month of April, the following being the result:—

Re-action	...	...	...	Neutral, except with a highly concentrated solution.
Total hardness	...	...	6·3	grs. per gallon.
Permanent hardness	...	...	3·5	„ do.
Total solids	...	...	22·8	„ do.
Organic matter	...	...	15·26	„ do.
Chlorine	...	...	2·95	„ do.
Lime	...	...	·980	„ do.
Magnesia	...	...	1·82	„ do.
Sulphuric acid	...	...	2·9401	„ do.
Carbonic acid	...	...	1·3	cubic inches do.
Ammonia	...	...	...	A trace.

During the past year, owing to the great scarcity of rain, the water in the wells is very low—much lower, in fact, than has ever been known during the memory of residents; and it is anticipated that much inconvenience will be felt from want of water. At present the water from the wells is only used for drinking purposes; all water for ablution has to be brought from the river.

4. Grain, &c., is good, but the price is high, and, consequently, those with large families have considerable difficulties to contend with in providing for them. Vegetables have been very scarce during the year, and, consequently, there have latterly been a few cases of scurvy among the men.

5. The duties have not been heavy, and have in no way affected the health of the men: most of the men have been put through the running drill without any deleterious result. The men have had, on an average, 7·4 consecutive nights in bed. Some few employ themselves in the talimkhana, and a few devote their leisure to sport; besides these the amusements of the sepoys are of a very limited character.

6. The 2nd guard lock-up room is well ventilated; but the floor being of stone, prisoners are apt to catch cold during the cold and rainy season, unless allowed the use of their bedding.

7. There has been no over-crowding in the hospital. The latrines are very old, and should be removed, as, owing to the ground being thoroughly saturated, it is very difficult to keep them free from smell; this is only effected by a large use of carbolic acid and McDougall's powder. The conservancy cart during 7 months in the year does not visit the latrines so often as is desirable, owing to there being, during that period, no regimental cart, and all the work devolving on the camp cart. The water-supply to hospital is good, obtained from one of the wells in the lines distant about 400 yards; there is a well nearer at hand, the water of which is used for ablution.

Sickness, Mortality, and Invaliding.

8. The health of the men has been good ; the number of admissions, &c., are here shown :—

		Admissions.	Strength.	Average Daily Sick.	Treated to Strength.	Deaths to Strength.	Deaths to Treated.
1874	... ..	623	475	15·2	134·9	·63	·49
1875	... ..	550	551·2	15·9	102·7	1·6	1·9

There is a great diminution in the number treated for ague, 231 in 1875 as compared with 341 in 1874 : the cases were, most of them, slight but all typical. A great number of those admitted, were men just returned from Barda Choki, these cases proving much more obstinate than the others, and yielding but slowly to treatment. Rheumatism shows a slight increase, there being 50 treated as against 45. Syphilis a decrease, there being only 7 cases in 1875 to 16 in 1874. Scurvy 5, 1 of which proved fatal. Conjunctivitis 29 cases ; all yielded readily to treatment ; the cause was chiefly the glare and dust in the hot months. Diseases of the respiratory system give a slight decrease, 23 to 29 in 1874 ; of these, however, 3 proved fatal, 2 of which were cases of phthisis and 1 of pleurisy. Dysentery 18 as against 20 in 1874 ; most of them were slight cases. Diarrhoea, 5 admissions and 2 deaths, 1 of which was very rapid, and but for the absence of all cramps and suppression of urine might have been mistaken for cholera. The other death was an old case of chronic diarrhoea in which the man had suffered more or less for 8 months, but had not presented himself for treatment until it was too late. Hypertrophy of the spleen gave 7 admissions—all men who had been on detachment duty at Barda Choki. Debility 10, 1 of which proved fatal, the heart on a *post-mortem* being found diseased. The mortality has been high, 9 deaths during the year as compared with 3 in 1874. 1 man while on guard struck down with sun-stroke. 30 men were invalided, and 15 sent away on sick leave ; of these by far the larger number were men who had been on detachment duty at Dwārka and Barda Choki. 3 men discharged by court-martial.

9. The principal cause of sickness and mortality in the regiment is the climate of Dwārka and Barda Choki ; that of the former place is deleterious to the constitutions of those who are liable to any chest or rheumatic affections, while that of the latter is almost certain so to saturate the constitutions of those who are sent there with malaria that years must elapse before they can regain their former tone and vigour. The mortality has been 8 Hindus from the Konkan and 1 Mussulman from Hindustan.

10. The fall of rain has been very small, only 17. 86 inches below the average ; the fall, however, was so spread over the whole rainy season that no climatic ill-effects have been felt. It is much to be dreaded that want of water will be much felt during the present year ; all the crops are moderately plentiful, and there is no prospect of any great deficiency in that respect.

11. Though cholera has been to a slight extent prevalent throughout Kattywar, and even in Rājkot itself, there have been no cases in the regiment or even in camp limits.

12. Vaccination was practised on 44 persons.

13. The general health of the men has been good, and in physique they are slightly above the average of most regiments.

14. The sulphate of cinchonidine has been tried during the year ; the result cannot be said to be satisfactory. In severe cases of ague it is absolutely useless, and in slight cases a saline purgative and rest is quite as efficient.

14. The men of the regiment may be said to be in good health ; the number treated has been considerably less, but the mortality has increased, chiefly due to the ill-effects of the climate of Barda Choki. The lines, hospital, and various sanitary arrangements are satisfactory.

15. The medical pupil received daily instruction, except at the time the musketry practice was going on, when he had to attend at the ranges.

Observations on the Mean Level of the Sub-soil Water.

Locality or Designation of Well.	Date and Hour of Measurement.		Distance of Sub-soil Water below Surface of Ground.		Rainfall from Date of last Measurement.
Moochies' well belonging to 7th Regiment N. I., situated close to Store Guard, 28th N. I.			Feet	in.	In. cts.
	24th February 1875, at 5 A.M.	...	25	5	...
	15th March	do.	25	3	...
	15th April	do.	25	6	...
	15th May	do.	26	0	...
	15th June	do.	26	4	0 32
	15th July	do.	26	7	3 9
	15th August	do.	24	11	4 63
	15th September	do.	24	9	3 65
	15th October	do.	26	9	1 78
	15th November	do.	27	3	...
	15th December	do.	27	2	0 61

REMARKS BY DEPUTY SURGEON-GENERAL D. WYLLIE, M.D.

Results for the year show improved health, but with some increase in mortality. Sanitary conditions generally satisfactory, water good, duties moderate, and lines the best in the division, each hut having 1,350 feet cubage. Permanent latrines are used during 5 months of the year. Vegetables have latterly been scarce, and some cases of scurvy have concurrently occurred. The regiment gives a detachment to Barda Choki.

I inspected the hospital, February 9th, and found all arrangements satisfactory, with ample and good accommodation. Vaccination and re-vaccination were carried on throughout.

Detachment, H. M.'s 28th Regiment N. I.

BARDA CHOKI.—In medical charge of 3rd Class Hospital Assistant SHALLUM SAMSON ; Strength, 87·9.

1. The detachment moved to Porbandar for change of air, and was there from 1st September to 1st December 1875.

2. There are three lines consisting of 204 houses, of which 99 were unoccupied ; they are built on good plinths. No repair has been made during the year. Ventilation is perfectly good ; the bazaar, which is in the vicinity of camp, contains all necessaries. There are three villages, each about $\frac{1}{2}$ a mile from the lines. Proper drainage has been made in and about the lines. The rainfall does not collect about the lines so as to endanger health. There are no tanks ; the only well in the vicinity of camp is close to the lines. The water-supply is sufficient, and there is a river passing very close to the lines ; the water is of good quality, is used for bathing, washing, &c.

3. There is only one latrine for the hospital patients, but none for the lines. The sanitary arrangement is good.

3. All sorts of grains, &c., obtained in the bazaar, are of good quality and abundant, and at a cheap rate.

4. The duties are light, each man getting $5\frac{5}{8}$ nights in bed.

5. There is no separate building for the hospital, but the sick are lodged throughout the year in the Hibbert Hospital, founded A.D. 1867 ; is perfect as could be desired. No over-crowding. The water-supply of the hospital is derived from the same sources as that of the detachment, the quantity abundant, and the quality good.

6. The following table will show the admissions for fever in each month compared with 1874 :—

		January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Total.
1874	...	...	3	2	2	8	52	90	64	20	28	29	18	307
1875	...	8	2	1	8	15	15	38	63	28	10	13	18	219

6. Five deaths occurred in Hindus.

Observations on the Mean Level of the Sub-soil Water.

Locality or Designation of Well.	Date and Hour of Measurement.					Distance of Sub-soil Water below Surface of Ground.	Rainfall from Date of last Measurement.
						Feet in.	In. cts.
Only one well in the vicinity of camp, close to the lines.	Barda Choki.	15th January 1875, 5 A.M.	...	...	...	...	...
		15th February	do.	...	...	...	...
		15th March	do.	...	...	...	...
		15th April	do.	...	...	10 8½	...
		15th May	do.	...	...	10 0	...
							Lbs. ozs.
		15th June	do.	...	...	9 2	0 2
		15th July	do.	...	...	12 4	7 0
		15th August	do.	...	...	17 0	11 4
		15th September	do.	...	...	...	...
		15th October	do.	...	...	...	...
		15th November	do.	...	...	...	...
		15th December	do.	...	...	10½ 0	...

The measurement has been made early in the morning before the well is drawn. In September, October, and December, the detachment was at Porbandar.

REMARKS BY DEPUTY SURGEON-GENERAL D. WYLLIE, M.D.

The Barda Choki detachment, supplied by the 28th Regiment N. I., relieved a similar detail of that corps towards the end of January. The locality is the most malarious in this circle, and the extreme prevalence of ague on cessation of the monsoon necessitates the removal of the men each autumn to Porbandar, and thus from 1st September to 1st December the detachment was withdrawn to the latter town.

The water-supply noted as sufficient, food cheap, duties moderate, line accommodation adequate, no conservancy.

In an average strength of 87.9 there were 290 treated, giving a daily average number of 7.7 sick. Ague contributed 225 of the total, or 77.6 per cent, bowel-complaints 28, and contusion 9. The few diseases thus unaccounted for, were chiefly affections of the skin or cellular tissue, and all unimportant, excepting 4 of scurvy, of whom 1 died. The other deaths were 3 from ague, and 1 (suicidal) by gun-shot wound of heart. The percentage of treated to strength was 331.5, of deaths to strength 5.7, and of deaths to treated 1.7; the corresponding figures for previous year were 461.7, 2.3, and 0.5.

The sick are accommodated in the Hibbert Hospital, there being no separate building, and on occasions of crowding treated in the lines. No vaccination was performed. In regard of the fact that a number of men were invalided last year from the effects of fever contracted at Barda Choki, and that there are others broken in health and permanently unfitted, as I realized at my recent inspection of the 28th Regiment, I am of opinion that this detachment should, if possible, be withdrawn, or moved to some other and more healthy locality.

Detachment H. M.'s 7th Regiment N. I.

DWA'RKA.—In medical charge of 3rd Class Hospital Assistant RAGOONATH ;
Strength, 80·7.

1. The detachment, consisting of 1 European officer, 2 Native officers, and 88 rank and file, relieved the detachment H. M.'s 28th Regiment in January last, and is located at the camp, which is about half a mile to the north of the town of Dwárka.
Location and Movement of Corps.
2. The soil rocky, the quality of the water good. The climate throughout the year is very salubrious, and more so from the commencement of April to the middle of October ; after this time east winds set in, which are unhealthy, inasmuch as fever becomes rife during their prevalence.
Topography.
3. There are three lines for the detachment, and the space available for each man is sufficient. Ventilation is perfect. The bazaar in the town contains all necessaries. There is no village close to the camp. There are no regular drains, but the rainfall does not so collect as to endanger the health of the detachment. There are two ponds in the vicinity of the camp ; but, as there are any number of wells here, the water contained in them is not made use of by the detachment. There is only one privy for the use of the sick ; but the men of the detachment have no privy, and they are obliged to go to the jungle. The water is from a well about 200 yards from the lines, quantity abundant, and the quality good.
Lines.
4. Food grains are of good quality, abundant, and moderately cheap.
Food.
5. The duties were rather hard, as the men only got 2½ nights in bed ; but these duties don't seem to exercise any bad influence on their health.
Duties.
6. Offenders are lodged in the quarter-guard, where ventilation is quite perfect.
Lock-up Room and Cells.
7. There is no separate building for the hospital, and the sick are lodged in two rooms in the lines ; the ventilation of these is not so perfect as could be desired. The space is too small when the number of sick exceeds 5 ; and, as more than that number is usually under treatment, there is some over-crowding. The water-supply of the hospital is derived from the same source as that of the detachment, the quantity abundant, and the quality good.
Hospital.
8. Fever gave the largest number of sick during the year, and next comes chronic rheumatism. 1 European officer died. No invaliding during the year, nor discharge by court-martial. The principal cause of sickness is probably malaria.
Sickness, Mortality, and Invaliding.
9. There is no evidence of the small quantity of rainfall exerting any evil influence on the health of the men.
Influence of Rainfall.
10. The men throughout the year enjoyed good health, and they have greatly improved in appearance.
General Health and Physique of the Men.
11. I would observe that a want of a proper hospital building is greatly felt by the detachment ; besides this, I would also observe that there are no quarters for the hospital assistant with the detachment and hospital servants.
Special Observations.

Observations on the Level of the Sub-soil Water.

Locality or Designation of Well.	Date and Hour of Measurement.	Distance of Sub-soil Water below Surface of Ground.		Rainfall from Date of last Measurement.
		Feet	in.	
	25th February, at 5 A. M. ...	24	6	0 17
	15th March do. ...	24	6	...
	15th April do. ...	24	6	...
	15th May do. ...	24	6	...
	15th June do. ...	25	5	0 18
	15th July do. ...	23	0	0 59
	15th August do. ...	24	0	0 71
	15th September do. ...	28	7	0 42
	15th October do. ...	29	7	...
	15th November do. ...	29	7	...
	15th December do. ...	29	7	...

REMARKS BY DEPUTY SURGEON-GENERAL D. WYLLIE, M.D.

Health was satisfactory, contingent circumstances regarded. The lines are reported as adequate in space and ventilation ; water abundant and good ; food moderately cheap ; no conservancy ; duties very heavy, only $2\frac{1}{2}$ nights in bed. The locality is fairly healthy, unless from September till December, when east winds and ague prevail. There is no separate hospital ; the sick are treated in 2 rooms attached to the lines, both badly ventilated and insufficient, being only adapted for 5 patients. No vaccination.

H. M.'s 11th Regiment N. I.

BHUJ.—In medical charge of Surgeon-Major H. R. McDougall, M. D.;
Strength, 671.

1. The regiment has been stationed at Bhuj. With the exception of small recruiting and escort parties and men on furlough, the whole strength of the regiment has been at head-quarters during the year.

2. The country looks more barren and desolate than last year owing to the scanty rainfall ; a great drift of sand took place, this spring, in consequence of the prevalence of high winds. The two tanks were not nearly filled this year, though some engineering arrangements had been carried out by which it was hoped the larger tank would be completely filled ; this failed, however, by the scanty rainfall. The tank is at present at a very low ebb, and is expected to be quite dry in 2 months' time, which will reduce the people of the town to considerable straits. Drainage is rapid and efficient ; there are no natural collections of water in the vicinity. Strong winds prevailed in the early part of the year, causing much inconvenience from the great drift of sand which half-blocked up the doorways of some of the rows of huts, obliterated the roads in some places, and nearly buried the young trees.

3. Owing to several men bringing their families with them on returning from furlough, the population of the lines has been greater than last year. but no inconvenience, in a sanitary point of view, has been noticed in consequence. The ventilation, though not very well provided for specially, seems ample ; a nearly constant breeze during the greater part of the year and a single-tiled roof effect a pretty free interchange of air. The men's huts have undergone the usual repairs during the year, and are in fair condition, but much of the woodwork is very old and injured by dry rot and white ants. There is no system of drains in the lines ; all sewage matters are removed by hand daily. The sub-soil water stands at a depth of 42 feet, and there is at present a depth of 8 feet of water in the wells in the lines.

4. The trench system of latrines is still in use ; the positions occupied, are the same as last year, and the arrangements similar. None of the old trenches have been re-opened, nor has any of the land used been brought under cultivation. The system is found to answer well so far as it goes ; but, as a matter of fact, a large proportion of the men prefer, when practicable, resorting to the open country at a considerable distance, asserting as a reason that the accommodation is insufficient, that there is a want of privacy, and that the enclosure becomes dirty and offensive when much frequented. The trenches themselves have not been found to be a source of annoyance during the year ; no evil odour has been experienced from those that have been filled in. In certain moist conditions of the atmosphere those actually in use are occasionally offensive to some distance off, but not for any

length of time, and are less objectionable in this respect than the old style of latrine. The arrangements in private compounds are the same as last year, and conservancy has been well attended to. There was very little growth of vegetation this year consequent on the scanty rainfall. The growth of trees is being attended to, but it is very up-hill work consequent on peculiarities of soil and atmosphere, and for lack of funds: the young trees make very slow progress under hand-watering, especially with a scanty rainfall, rocky or sandy soil, strong winds which prevail during a considerable portion of the year almost smothering some of them in sand-drifts, and the ravages of white ants; all these tend to thwart their growth.

5. The water has been good, and the supply ample during the year, but scarcity is anticipated next hot weather. The wells are uncovered, and, therefore, exposed to some *debris* being blown in during the prevalence of high winds; but the contamination from this source is found in practice to be very slight. There are no other local sources of contamination, most of the wells standing out on an open plain. The local supply of grain food, at all times deficient, has been more so than usual this year, the crops having almost failed owing to the scanty rainfall. Prices rose in consequence in August and September; but ample supplies having come in from Sind and Guzerat, they have again fallen to about their former level: a rise is, however, expected soon. The quality of the grain has been good. The average amount of grain compensation for the last 12 months has been Rs. 3-15-4, against Rs. 3-14-5 in 1874. The supply of vegetables is at all times limited, and there is but little variety; fresh fruits are obtainable at times, but with the exception of limes, which are tolerably plentiful in the hot weather, not cheap enough to be used by the men. No change has been made in the clothing; there has not been sufficient marching to show out any defect in the boot.

6. The duties of the men have been light, not sufficient to harass them in any way. The average number of nights in bed has been 7-84. The gymnasium has not been much frequented during the year; there is no inducement, such as competition with other regiments or gaining prizes, sufficient, apparently, to stimulate the men to engage in athletic sports. They have no occupation beyond their duties, except occasionally when repairing their lines, or on fatigue duty, repairing butts, &c. There is not sufficient inducement for any of them to practise any trade.

7. There were a few short route-marching parades at the beginning of the year; there is nothing special to note about them.

8. The hospital, a fine, airy building with a double-tiled roof and roof-ventilators on a high plinth, stands isolated; its frontage is free and open to the west. The out-houses at the rear are at a distance of 50 paces; it is sheltered from N. and E. winds by a hill at the back. The floor is of beaten earth, which is cow-dunged from two to four times a month. Ventilation is amply provided for, and there has been no over-crowding. The building affords accommodation for 32 patients; it has been thoroughly repaired during the year. No alterations have been made. One of the sweepers attached to the hospital is always present for conservancy duty; the arrangements are the same as last year. There are 2 bheesties attached to the hospital. The water of the hospital well, situated 120 paces to the rear, is used only for purposes of ablution. Water for other purposes is brought from a well about $\frac{3}{4}$ of a mile distant; the water stands about 48 feet from the surface, and there is a depth of 11 feet at present.

9. During the past year 332 cases have been treated in hospital against 377 in 1874. 18 of these remained from the previous year, and 314 were fresh admissions; of these 299 were discharged to duty, 4 died, 7 were sent before the invaliding committee, 8 were transferred under other headings of disease, and 14 remained at the end of the year. The average daily sick was 16.1, against 14 last year. The percentage of treated to strength was 49.48, of deaths to strength 0.6, and deaths to treated 1.21; against 56.4, 0.7, and 1.3. The percentage of daily average of sick to strength was 2.4 against 2.1. One case of small pox was under treatment in April; the man bore marks of vaccination: the eruption was pretty copious, but the symptoms all mild. Fever gave 81 admissions, of which 53 are entered as febricula, 25 ague, and 3 remittent fever, being a percentage of 12, against 112 admissions, or 16 per cent., last year. The cases of remittent fever were all severe, 1 died, and 1 was sent away on sick leave. The cases of ague were mostly mild, uncomplicated, and amenable to treatment by quinine, cinchonidine, and arsenic. The cases entered as febricula were those in which there was no distinct second paroxysm, but as quinine was given in most of them the disease may possibly have been cut short. Of the 81 cases 9 were re-admissions. Rheumatic affections gave 8 admissions, or 1.2 per cent., against 22, or 3.3 per cent., last year. Syphilitic 14 admissions, 10 primary and 4 secondary. Gonorrhœa 1, being 15 admissions in all, or 2.2 per cent., against 8, or 1.5 per cent., last year. One man was thrice

under treatment. Only 1 case of scurvy was admitted. General dropsy gave 1 admission, which terminated fatally; the cause was believed to be hepatic, but the diagnosis could not be verified by *post-mortem*. An obscure case of sciatica, accompanied with wasting of the muscular tissue of the thigh, was admitted; he was subsequently invalided. A case of deafness, the result of repeated attacks of inflammation, will probably have to be invalided. The case of palpitation and irregularity of the action of the heart, remaining from last year, was invalided, there having been no improvement; the true nature of the case remained obscure. Diseases of the respiratory organs gave 35 admissions, or 5·2 per cent., against 17, or 2·5 per cent., last year. 24 of these cases are entered under bronchial catarrh; there was a marked tendency to these affections during the last two months of the year. Most of the fever cases presented catarrhal symptoms. One case of phthisis terminated fatally. Diseases of the digestive system gave in all 64 admissions, or 9·5 per cent., against 60, or 9 per cent., last year. There were 10 cases of dysentery, or 1·5 per cent., against 17, or 2·5 per cent., in 1874; all yielded readily to treatment. Of 2 cases of abscess of the rectum one was simple and recovered rapidly; the other was much more serious. The man applied with symptoms of fissure, but none could be found: a small abscess subsequently formed inside the sphincter, and evacuated itself freely and spontaneously. The case seemed to be doing well, when erysipelatous inflammation set in, involving the surrounding parts and the scrotum, resulting in sloughing of a large portion of the cellular tissue in the neighbourhood of the anus: the man's life was in danger for some days, and his recovery, though complete, was very tedious. In the case of non-malignant tumour of the rectum the cyst was said to be of long standing, but had lately become inflamed and painful; it was excised, and found to contain a quantity of cheesy matter. 1 case of hepatitis, 1 of hepatic abscess, and 3 of simple enlargement of the liver were under treatment. The case of abscess terminated fatally; it was interesting in an anatomical point of view, there being complete transposition of the liver and spleen. 5 cases of congestion of the spleen were simple; but a case of splenitis threatens to terminate fatally, the man being in a very bad state of health generally. 3 cases appear under disease of the urinary system. A case of Bright's disease presents no symptoms of dropsy as yet, but a large amount of albumen passes off daily in the urine. The man declares that he feels quite well. A case of calculus of the kidney was operated on last year for stone in the bladder. The diagnosis in the present instance was not confirmed by the passage of any concretion; the man was invalided. The man who was admitted with calculus in the ureter showed a number of concretions which he said he had passed when absent on furlough; the largest of them was clearly a pebble, though he declared he had passed it after considerable pain and difficulty. The others were all urinary concretions. He passed two similar ones whilst in hospital, and the symptoms disappeared. The case of contraction of tendons was transferred from under the heading "corn"; the man originally suffered from callosities on each heel, which he declared were so painful that he could not place the heel on the ground. He always walked on his toes like a case of talipes equinus; from continually doing so the tendons crossing the ankle-joint were becoming contracted and the bones displaced; the man was invalided. Diseases of the cellular tissue gave 16 admissions, or 2·4 per cent., against 15, or 2·2 per cent., last year. 10 were cases of abscess, 6 of guineaworm; the latter occurred in 3 individuals, all recruits lately joined. Diseases of the cutaneous system gave 41 admissions, or 6·1 per cent., against 53, or 7·9 per cent., in 1874. A case of obstinate impetigo was sent on sick leave; he derived no benefit from the change, and was, therefore, invalided. 1 case of snake-bite was admitted; one puncture only was found on the outer edge of the foot. The symptoms were local only. The man said he had killed the snake, which was about a foot long; he did not produce it. Injuries gave 25 admissions, or 3·7 per cent., against 46, or 7 per cent., last year. 18 were cases of contusion, 1 of fracture, 5 sprain, and 1 burn. Two of the cases of contusion were rather severe: the men were standing with a number of others on the top of a house in the town witnessing some wrestling; a stone gave way, and they fell a height of about 20 feet, some stones and persons falling on them. One man was insensible when brought to hospital, but speedily rallied; he was found to have received a severe contusion of the chest and a moderate blow on the head; the other had received a severe blow on the right side of the head. It was thought at first that the skull was fractured, but no serious symptoms were developed, though he was laid up for a considerable time. The fracture, a simple one of the left upper arm, was sustained by a weakly recruit, of feeble muscular development, whilst wrestling in the gymnasium with a powerful opponent. One case of sprain (of the loins) was caused in the same way.

10. Four of the cases treated in hospital terminated fatally: 1 from remittent fever,
 Mortality. 1 abscess of the liver, 1 pneumonic phthisis, and 1 from
 general dropsy.

11. Twenty-three men were sent before the invaliding committee; 7 of these were sent
 Invaliding. from hospital. Of those sent, 21 were pensioned and 2 were
 remanded, one of the two being a hospital case. One man was
 discharged by court-martial, 1 at his own request, and 1 for misconduct.

12. There has been no particular sickness during the past year to be accounted for:
Principal Causes of Sickness. most of the fever cases appeared to be caused by atmospheric variations, and were probably partly also due to malaria of local origin. Small-pox was prevalent throughout the country at the time that the case occurred.

13. Remittent fever, due to local causes, caused 1 death. A second was caused by disease, probably inherited; the 2 others due to liver disease, probably of local origin.
Principal Causes of Mortality.

Mortality according to Race. 14. The 4 fatal cases were Hindus.

Influence of Rainfall. 15. The rainfall during the past year does not appear to have influenced the health of the men.

16. Small-pox was epidemic throughout the country during the first 4 months of the year: 2 cases only occurred in the lines, one a sepoy the other a sepoy's wife. Hooping-cough was prevalent amongst the children during April, May, and June, and some cases of remittent fever were met with in the lines in June.
Epidemics.

17. All recruits and families joining have been examined, and vaccination performed in all doubtful cases: all infants have been vaccinated. The result obtained has been as follows:—92 persons were re-vaccinated by 100 operations, of which 20 were successful and 80 unsuccessful. 82 persons were vaccinated by 100 operations, of which 75 were successful and 25 unsuccessful. Amongst the camp-followers 2 persons were re-vaccinated without success, and 5 were vaccinated by 7 operations, of which 4 were successful and 3 unsuccessful.
Vaccination.

18. The general health of the men continues good; the physique of the majority is of fair standard. Of the recruits who joined during the year some were young and undeveloped, but they all looked likely to turn out well.
General Health and Physique of the Men.

19. The regiment in its full strength has been stationed at Bhuj during the year. The men appear to retain the good health they enjoyed on arrival. Small-pox was epidemic throughout the country in the early part of the year, but fortunately only 2 cases occurred in the lines. The scanty rainfall this year caused a failure of the crops, but this has not as yet influenced the price of provisions much, nor has it affected the water-supply. The lines are well situated and open, and external ventilation is very free during the greater part of the year. The huts are not of the best, but appear to answer well enough for the requirements of the climate. The sanitary arrangements of camp are well attended to in all respects. The duties of the men are light; there is a lack of occupation for their leisure hours which circumstances of locality and climate render it difficult to supply. The death-rate has not been high, and the general health of the regiment contrasts favourably with last year, when it was also good.
Resumé.

20. It is my custom to instruct the pupils three times a week on all the subjects comprehended in the half-yearly examination. The hospital assistants are also instructed and examined as opportunities offer.

Observations on the Mean Level of the Sub-soil Water.

Locality or Designation of Well.	Date and Hour of Measurement.				Distance of Sub-soil Water below Surface of Ground.	Rainfall from Date of last Measurement.
					Feet in.	In. cts.
Hospital well	...	February 15th,	9 A.M. (not been drawn).		47 2	...
Do.	...	March	„ do. do.		47 2	0 47
Do.	...	April	„ do. do.		47 4	...
Do.	...	May	„ do. do.		47 6	...
Well on open plain set apart for observation for Sanitary Commissioner. This well is never used.		June	„ do. do.		31 7	0 1
		July	10th do. do.		31 6	3 15
		August	„ do. do.		31 7	0 96
		September	„ do. do.		31 8	0 68
		October	„ do. do.		31 11	1 8
		November	„ do. do.		32 1	...
		December	„ do. do.		32 1	...

REMARKS BY DEPUTY SURGEON-GENERAL D. WYLLIE, M.D.

The 11th Regiment N. I was the healthiest in the division both during past and previous year. Sanitary surroundings favourable, unless that the men's huts are very deficient in capacity, having only 405 cubic feet each. Water-supply, solely by wells, sufficient and fair ; duties light ; trench-latrine conservancy in use throughout, sufficiently distant to be free from nuisance. The hospital, inspected 1st February, has ample and good accommodation ; its arrangements and organization satisfactory, but no separate contagious ward. Vaccination and re-vaccination were zealously carried out both among the men and their families. Dr. McDougall's report and accompanying appendix show care and commendable attention.

H. M.'s 2nd Regiment Light Cavalry.

DEESA.—In medical charge of Surgeon BARRY, M.D., F.R.C.S. ; Strength, 288·9.

1. The regiment has been located at Deesa since January 1871. The 1st Squadron Location and Movement of Corps. marched for Rájkot on 5th November; the 2nd Squadron was prevented rejoining head-quarters on account of an outbreak of cholera in the districts around Rájkot. In March a European officer and 27 sabres proceeded to Balatra to purchase remounts. The 2nd Squadron, which was at Rájkot throughout the year, furnished, monthly, a party of 13 sabres to Drappa. The 1st Squadron was on the line of march and at Rájkot from 5th November to 31st December 1875.

2. Since last report the chief roads in camp have been considerably raised above ground-level with "moorum", and consolidated with "kankar". Topography. There is now a fine avenue on the road leading from the European lines to the sudder bazaar. Young trees have been planted on both sides of nearly all roads in cantonment; this is not only pleasing to the eye, but has a cooling effect in the hot season. To ensure free circulation of air, prickly-pear hedges, environing trees lining roads, have been uprooted and cleared off. A manure-yard in the bazaar has been abolished, and a new one constructed at a safe distance, and great pains have been taken by the cantonment magistrate to keep the bazaars and compounds clear of rubbish, filth, &c., and all places cleaned containing weeds or rank vegetation.

3. Pursuant to the directions of Deputy Surgeon-General D. Wyllie I made a monthly measurement of the ground or sub-soil water, and the following Sub-soil Water. table shows the mean level of the sub-soil water for each month, beginning with February 1875, at Deesa :—

Locality or Designation of Well.	Date and Hour of Measurement.				Distance of Sub-soil Water below Surface of Ground.	Raiafall from Date of last Measurement.
					Feet in.	In. cts.
Well in hospital compound affording a perennial supply.	15th February 1875, 5 A.M.	...	...	...	52 6	...
	15th March	do.	...	...	53 0	...
	15th April	do.	...	...	53 6	1 15
	15th May	do.	...	...	53 6	0 20
	15th June	do.	...	...	54 0	0 5
	15th July	do.	...	...	53 6	7 91
	15th August	do.	...	...	50 2	12 67
	15th September	do.	...	...	50 9	2 75
	15th October	do.	...	...	49 6	9 81
	15th November	do.	...	...	53 3	...
	15th December	do.	...	...	51 1	...
	Mean level...				51 11	

4. The unprecedented heavy rainfall so flooded the great nallah bounding camp on east and south that 15 yards of the wall of the old grave-yard were undermined and fell in. In October an earthquake shock was felt, beginning with a distant, low, rumbling sound, followed by distinct vibrations as of a subterranean wave. These phenomena were coincident with an earthquake at Mount Aboo, 49 miles distant, the formation of which is volcanic.

Water.

5. Water is obtained from wells ; quality fair.

Drainage.

6. Only natural drainage.

7. In January north and north-west winds prevailed ; the thermometer often stood as low as 35°F., being 3°F. less than the lowest recorded in 1874.

Climate.

The air was tonic and bracing, and any exercise a pleasure. Lowest temperature in February—42°F., and rain fell on two days to the extent of 1·3 inches. The real hot weather began on the 28th of March, and lasted till the 6th of July. No rain this month. During April the heat was great ; rain fell only one day, when 1·052 inches were registered. May was intensely hot, the thermometer frequently indicating 112°F. in the shade. In my house, doors and windows closed, with a good thermantidote and punkah continually acting, the temperature stood at 93°F. throughout the day. During May and June, frequently by 12 noon, clouds of pulverized sand darkened the atmosphere, even when the wind was apparently still, and by 5 p.m. no object was visible beyond 300 yards. 13 cents of rain fell in May. In June sand-storms were most disagreeable and enervating. In this month, when cholera prevailed in many villages around Deesa, a spot was selected to leeward of camp, where grass-huts were erected for any cases among the inhabitants of the bazaars. Sentries were posted night and day on all main roads to prevent communication with infected places. No cholera appeared in camp, although 20 cases were reported weekly at Sidpur, 27 miles distant. The monsoon broke on the 9th of July. Total rainfall for this month 18 inches 13 cents. In August only 3 inches 98 cents fell. In September the continued heavy rainfall on the Aravulli range flooded the Bunnass from bank to bank behind the sudder bazaar—a distance of half a mile. It was a perfect running sea, carrying trunks of trees, roots, *debris* of all kinds, dead animals ; and 2 dead human bodies floated past. Rainfall, 11 inches 98 cents. In October the sun was very powerful, and the nights somewhat chilly, the mean daily range being 25°F. November and December were pleasantly cool. Throughout the year the highest temperature was 112°F., the lowest 35°F. Mean monthly range 38·25°F. Mean daily range 24·27°F. Mean temperature for the year 79·66. The mean of the barometric readings for the year was 29·463 ; the barometric range was small ; the mean monthly was 333. Rain fell on 53 days, and the total for the year was 37 inches 7 cents, being 10 inches in excess of last year. This is the heaviest fall of rain during the last 15 years in Deesa.

8. Extemporized surface drains in the monsoon. Conservancy arrangements carefully attended to. Sanitation satisfactory.

9. The supply of grains has been abundant, and prices moderate. Grass and cattle were procurable in the hot season. Jowari and other crops sustained great damage by the unusual heavy rains.

Food.

Duties.

10. Favourable ; have very little night duty.

11. The principal cause of admission was malarial fever, of which 76 were cases of ague and 2 of remittent fever. 28 cases of mild quotidian ague were treated with sulphate of cinchonidine. Always in the cold stage a strong diaphoretic was administered, and, when copious sweating ensued, 15 grains of cinchonidine were exhibited, repeated three times daily. Frequently nausea was excited, and occasionally headache and vomiting followed. In four cases the drug had no apparent effect. As far as my experience goes, it is an excellent bitter tonic and an anteperiodic of some value ; but its therapeutic action is uncertain. 15 grains are about equal to 5 of quinine. The average amount used in each case was about 3 drachms. Rheumatism gave 15 admissions, all of mild character. 3 admissions from dysentery, one of which proved fatal. This man had been invalided with chronic rheumatism, but dysentery supervened ; and being old, worn out, and of low vitality, he rapidly succumbed to the affection in spite of free exhibition of portwine, &c. 8 admissions from syphilis, 3 of which were invalided ; 6 of lung disease, 3 of which were pneumonia, 2 bronchitis, and 1 pleurisy. In one of the pneumonia cases there was no rusty sputum, although the temperature was during 48 hours above 104·5°F. There were 64 contusions or injuries. A duffedar at Pálanpur was bit on the thumb by a vicious horse, and the distal phalanx completely crushed. Ten days

after receipt of injury he was admitted into hospital with the entire thumb in a state of tumefaction, suppuration, and smelling badly. Animal-charcoal poultices, sprinkled with carbolic acid and water 1 to 20, were freely applied with marked benefit; 5 pieces of bone were afterwards extracted, and the parts took on a healthy action. He was discharged cured in 27 days. A sowar at a race meeting was knocked over by a pony at full gallop, sustained concussion of the cerebro-spinal axis, and was picked up insensible. He was discharged cured in 10 days. In May a sowar sustained Potts' fracture of left leg, his charger having fallen on him. He was able to walk in 2 months with the help of crutches. I operated, without chloroform, on a sowar affected with 3 sebaceous tumours of left side of cheek; there was great difficulty in dissecting out the membranes of the cysts. Patient made a rapid recovery. I excised a small tumour from the side of the nose of a sowar; there was considerable bleeding, which was overcome by torsion. There were 8 men invalided at head-quarters.

Operations.

12. A sowar many months in hospital, lame from contraction of the extensors of right thigh, was found, after repeated examination, to be a malingerer and reported to the commandant. This man became well in a few days on being told he would be tried by court-martial, and lose all pension for simulating disease. He is a fine, well-built, muscular sowar in the prime of manhood, only 37 years old. Desiring to leave the regiment, and being over 15 years' service, he could only get his discharge by simulating disability. Early reform of the pension system is urgently required; for, so long as the present rules obtain, malingering will be practised.

Recruiting.

13. 35 recruits were enlisted. The youths who seek enlistment are, as a rule, slim, ill-nourished, poorly-developed men, with narrow chests and deficient vital capacity. Only recently I rejected 8 out of 11; many of them were under 18 years old. All the highest authorities agree that no man should be enlisted until he is 20 years old; even then many processes in the vertebræ begin to ossify. According to Parkes the epiphyses of the radius and ulna, the femur, tibia, and fibula are all unjoined at 18 years of age, and are not entirely joined until the 25th year. As the first qualification of a soldier is fortitude and endurance under fatigue and privation, only hardy, muscular, well-developed men accustomed to exercise, above 20 years, should be enlisted.

14. The average strength was 288.9, daily average sick 9.4, admissions 243, and 1 death. The admissions were 39 less than in 1874, and 70 less than those in 1873. The mortality was one-fourth that of last year.

Principal Causes of Sickness.

15. The principal causes of disease were malaria, exposure to cold, falls and kicks from horses, and badly-fitting shoes causing abrasions.

Principal Causes of Mortality.

16. Dysentery caused by exposure to cold in a weak old Mussulman suffering from chronic rheumatism.

Epidemics.

17. No epidemic in camp. Cholera raged in villages 20 miles from Deesa for many weeks; mortality considerable.

18. There were 27 children successfully vaccinated.

19. The average height of the sowars is 5 feet 7½ inches, weight 130 lbs. 12 ozs., age 32½ years. The majority are fairly developed. The general health of the sowars was good; as compared with 1874 there was considerable diminution of sickness and mortality. The great proximate cause of inefficiency was malarial fever, and next in importance were contusions always incident to mounted duty. 8 men in Deesa and 12 men in whole regiment were invalided; the chief causes of invaliding were chronic rheumatism, constitutional syphilis, long service, and effects of falls from horse-back. The great predisposing cause of disease among sepoys is deficient nourishment, due to insufficient food of inferior quality. Weak lads are enlisted who do not get sufficient to eat, having at first so many cuttings from their pay for kit, &c. &c. As they grow older in the service, either from a desire to save money or from having many mouths to feed, or too many claims on their generosity and purse, they stint themselves of the necessities of life. They take no succulent vegetables, and there is no variety in their food. Such men are of inferior physique, and not the soldiers for the field, where endurance is required and privation must be undergone.

REMARKS BY DEPUTY SURGEON-GENERAL D. WYLLIE, M.D.

The return of sickness compares favourably with that for previous year alike in decrease, in sickness, and in mortality.

Surroundings sanitarily satisfactory: lines clear and open, locality well raised, each man's quarters having 1,800 cubic feet; but ventilation defective. Water by wells abundant and good, food comparatively cheap, duties involving little night work, conservancy efficient, permanent latrines throughout.

The hospital (inspected November 13th) very suitable, with ample accommodation, complete out-offices, and adequate equipment. Vaccination was duly attended to.

H. M.'s 18th Regiment N. I.

DEESA.—In medical charge of Surgeon J. C. LUCAS; Strength, 583.

1. The regiment has been stationed at Deesa for the last year. There is one detachment on duty at Sadra, which consists of 1 Native officer and 54 men. There have been 34 escort parties this year, 209 men having been on this duty.
Location and Movement of Corps.
2. The latrines situated in the bed of the river, on a level below the lines, are on the trench system: they consist of two square-shaped enclosures (one for each sex), but without any roofs to them. There are no receptacles provided for the excreta, and, as a consequence, the soil and ground water in the immediate vicinity cannot but be saturated with impurities. In the rains the river water must be contaminated with sewage both from surface washings and percolation of sub-soil or ground water. Another great disadvantage in these latrines is their distance from the lines; it is more than we can expect men, much less women and children, to go 4 to 600 yards, especially in dark nights and rough weather, to this place provided for their use. The consequence is, the excretions are voided in the immediate vicinity of their huts.
Latrines.
3. The water used for drinking and washing purposes is derived from six wells in the lines, the sub-soil depth of which at 8 A.M. on 28th December 1875 was 32 feet 5 inches, 31 feet 9 inches, 32 feet 5 inches, 32 feet 2 inches, 13 feet 8 inches, and 9 feet 10 inches. The supply as derived from these sources seems ample, and the quality excellent, judging from the physical characters, though, after boiling and keeping it in a dark room for 3 or 4 days in a tall glass-jar, a very small quantity of suspended matter is observed to deposit at the bottom of the vessel.
Water.
4. Though the food in this station is abundant and cheap, still the men look ill-nourished; I have seen several scorbutic cases, though vegetables are so plentiful.
5. The boots worn by the sepoys are by no means good; they are wretched, unsightly, and ill-fitting. Shoe-bite is a frequent cause of admission into hospital.
Clothing.
6. The duties are the ordinary routine. During the cold weather running drill is performed daily by men under 15 years' service. Commencing with 300 yards, the distance is gradually increased, until, after about 6 weeks, 1,000 yards have to be run daily, the pace not exceeding 6 miles an hour. The duties, on the whole, are not excessive, and seem to me to be conducive to health.
Duties, &c.
7. There has been no regular marching-out this year.
Marches.
8. There has been no over-crowding in hospital. In the event of additional admission the two contingent wards outside the hospital building could be utilised; each of these is able to hold 8 or 9 beds. One of these I use for ophthalmic cases, as this room is dark, and has blue paper in the windows; the other I reserve for women and children and obstetric cases. There is no kitchen to the hospital; and as 2 servants—the dhobie and leechman of the establishment—have been recently discharged, one of the rooms occupied by them can be used for cooking purposes if wanted. The hospital latrines are built of permanent masonry; receptacles are here provided for the reception of the excreta, which are removed daily. There is no urinal, and this I consider no little deficiency. Deodorization and disinfection are properly carried out by free use of carbolic acid, &c. The water from the well in the hospital compound is good. The sub-soil depth of this well is 56 feet 10 inches.
9. The average strength of the regiment during the year has been 583, the total admissions in hospital 732, total treated 755, no deaths, invalided 30, and treated to strength 129.50 per cent. The largest number of admissions and re-admissions have been from ague; the majority of cases have been of the quotidian type without any splenic complication, and yielded readily to sulphate of cinchonidine administered in 20-grain doses twice or thrice a day. I have seen only 2 cases of genuine dysentery in this hospital, in one of which there was thread of malaria running through it, and which excited some interest and curiosity in my mind; the paroxysms of the latter alternated with the intestinal flux, and in which I ob-

served that ipecacuanha in large doses could not at first be tolerated, though, when after the febrile paroxysms were subdued, a tolerance of ipecacuanha was so established that the drug, even in 50-grain doses, was retained and with the desirable effect. Ophthalmic cases are not uncommon. Keratitis and iritis, the majority of cases, on careful examination seemed to have the syphilitic taint, the affections excited by the irritation caused by the intense glare of the sun. In addition to the men invalided the following have been struck off the strength of the regiment :—1 discharged for physical unfitness, 6 dismissed by court-martial, and 3 died on sick leave.

10. Malaria and vicissitudes of temperature are, no doubt, the principal causes of sickness. Out of the total number treated (465) the following table shows the diseases in the order of their frequency :—

Ague	...	...	...	...	...	266
Rheumatism, chronic	...	...	...	...	...	66
Bronchitis, acute	...	...	...	...	...	43
Contusion	...	...	...	...	...	62
Conjunctivitis	...	...	...	...	...	28

Influence of Rainfall. 11. The number of admissions from ague increased at the setting in of the rains and the heavy floods.

Epidemics. 12. There has been no epidemic disease.

13. The vaccination duties have been well carried out. Number vaccinated during the year was 70.

14. The general health and physique of the men is fair.

15. I have had the medical pupil at my house twice a week, and have instructed him by making him write and study from dictation the preparations, doses, and properties of drugs, the symptoms and treatment of ordinary diseases, as well as of common poisoning, besides clinical instructions in the hospital wards.

REMARKS BY DEPUTY SURGEON-GENERAL D. WYLLIE, M.D.

There was a marked improvement in health as compared with previous year. Sanitary conditions generally favourable ; water-supply abundant ; duties moderate ; the men's lines, however, are old and dilapidated ; cubage of huts 750 feet ; trench-latrines conservancy, which is here well suited to the locality. The hospital was inspected November 15th ; it has excellent and sufficient accommodation, and is complete in out-offices and contagious wards. Equipment and arrangements for the sick all satisfactory. Vaccination and re-vaccination were carried on both among the men and families.

H. M.'s 16th Regiment N. I.

MHOW.—In charge of Surgeon W. C. KIERNANDER ; Strength, 547.

1. The regiment was in Mhow till the 18th November, when the right wing with headquarters left for Nusseerabad. The left wing started on the 26th December for the same place. The only movement during the year was one wing of the regiment to Indore for 6 months.

Lines. 2. The lines were repaired and re-roofed during the year, and some cess-pits that were found inside the huts were filled up.

3. The conservancy and sanitary arrangements were the same as described in my last report, except that I had the small parallel trenches instead of the long ones that were in use in the previous year, and they gave greater satisfaction to those using them. Arrangements were also made for the women and children during the night, by having a certain number of iron receptacles placed in the lines for their use ; these were cleared away by the sweepers early in the morning. This contributed to keep the lines and huts cleaner, as, owing to the distance of the latrines, the ground in front of the houses or cess-pits inside the huts used to be resorted to by the women and children at night.

4. Vegetables were dear, and the consequence was scurvy appeared in the regiment ; nearly one-half the men suffered from it. I cannot too often repeat that the pay of the sepoy is inadequate with his large family, and provisions anything but cheap ; he is unable to provide for himself and family adequate sustenance so as to keep up a proper standard of health.

5. The duties are not excessive ; the average number of nights in bed was about 6. There is a gymnasium in which a few of the men amuse themselves, but it would be better if all recruits were obliged to go through a course, not in addition to their present duties, but by giving one morning a week entirely to gymnastics.

Marches.

6. The regiment left Mhow by wings—the right on 18th November, the left on 26th December, for Nusseerabad.

7. The dead-house was in the same condition as when last reported on. *Post-mortem* examinations are conducted in it with the greatest difficulty. There was no over-crowding, and the accommodation was sufficient.

Hospital.

8. From the hospital well. The following observations regarding the level of the sub-soil water were made at the hospital well :—

Hospital Water-supply.

Locality or Designation of Well.	Date and Hour of Measurement.	Distance of Sub-soil Water below Surface of Ground.	Rainfall from Date of last Measurement.
		Feet in.	In. cts.
Well in hospital compound.	15th January 1875, at 5 A.M. ...	None.	....
	„ February „ do. ...	38 6	0 12
	„ March „ do. ...	39 1	.....
	„ April „ do. ...	58 4	0 29
	„ May „ do. ...	70 6	0 75
	„ June „ do. ...	70 0	4 91
	„ July „ do. ...	70 0	8 45
	„ August „ do. ...	70 0	6 17
	„ September „ do. ...	29 4	15 84
	„ October „ do. ...	16 6	0 25
	„ November „ do. ...	28 6	.....
	„ December „ do. ...	None.	.....

It will be noticed from the above return that there was a sudden fall in the level of the sub-soil water in the month of April, amounting to 19 feet 3 inches, and that the water still further receded in May, and continued at a distance of 70 feet till September, when it suddenly rose. This period coincided with the prevalence of cholera in and about Mhow. On the 10th April cholera appeared in the regiment; 2 cases occurred; of these 1 died and 1 recovered. In the month of August a second outbreak occurred in the regiment; there were 5 admissions, and of these 3 proved fatal. There was a good deal of diarrhoea also during the time the sub-soil water was farthest from the surface. Petinkofer's theory of the variation in the sub-soil water as a factor in the causation of cholera would be capable of more exact proof in Mhow, where cholera so frequently appears, if a well in the bazaar were selected, and a weekly note made of the distance of the water from the surface, together with a regular and compulsory system of registration of deaths.

9. The principal diseases that were under treatment during the year were: 1st, Cholera appeared twice in the regiment during the year. Hydrate of chloral was injected hypodermically in all cases without the slightest apparent benefit; there were 7 admissions and 4 deaths. I should state that "otherwise", mentioned in the annual return, means that these cases were entered under another head, viz., debility after convalescence from cholera. In the first outbreak cholera was imported by recruits who passed through a cholera district *en route* to Mhow; in the second, it was most probably contracted in the bazaar, where cases had occurred. 2nd, Intermittent fever.—This, as usual, caused the largest number of admissions; they were principally tertian, and were very amenable to the usual treatment. I did not find cinchonidine as useful as I expected, although given in 10-grain doses. 1 case of enteric

fever that occurred, deserves special notice. Private Narayen Chawan, aged about 24 years, was admitted into hospital on the 23rd of August 1875 suffering from intermittent fever of a mild type, and was put on cinchonidine sulphas grs. x twice a day until the 26th of September, when, finding it perfectly useless, I changed it for quinine, grs. x twice daily. On the 27th his skin continued hot all the 24 hours, and his evening temperature was found to be 104·5, and his pulse 120. Next morning his temperature was 102·2, sordes on teeth, drowsy, bowels constipated, no pain in abdomen, no gurgling on pressure, tongue dry and furred, no eruption visible. On the 28th diarrhoea set in with yellow characteristic stools, and the abdomen was much distended; he gradually sunk and died on the morning of the 29th. A *post-mortem* examination was made the same evening; the spleen was found twice its natural size, there was extensive ulceration of Peyer's patches, and the mesenteric lymphatic glands were very much enlarged. It is curious to note how enteric fever and intermittent fever co-existed in this case, and how the latter masked the former till within 2 days of his death. 3rd, Rheumatism as usual gave a large number of admissions, and numbers of men appeared daily just before the invaliding season whom I considered malingerers; yet it was impossible for me to have them punished, as I could not swear to it, and this brings me to the subject of invaliding. The present system is thoroughly bad in its operation, and I would recommend that every sepoy on completing 20 years' service should have the option of taking his pension of Rs. 4, or receiving Rs. 5 after 25 years' service without going before a medical board. Diseases of the respiratory system gave very few admissions during the year. Diseases of the cutaneous system gave a large number of admissions, most of which are due to debility induced by insufficiency of proper food. Diseases of the digestive system gave a large number of admissions, due frequently to the same cause. Contusions of the lower extremity gave a large number of admissions, which consisted principally of shoe-bites. These blisters are entirely due to the fact that the men neglected to soften their boots with oil; if they were compelled to do so, the total admissions to hospital would be materially lessened. The following table contrasts the principal causes of sickness during the year compared with the previous year:—

			Intermittent Fever.	Cholera.	General Debility.	Chronic Rheumatism	Boil.	Shoe-bite.	Diseases of the Respiratory System.	Daily Average sick.	Total Admissions.	Died.	Invalided.
1874	...	...	365	...	37	60	79	134	61	38·28	1,010	2	56
1875	...	...	265	7	11	46	44	105	20	24·7	749	5	59

From the above it will be seen that the men enjoyed better health during the year under report, and this I attribute to the lime-juice and quinine that was supplied to nearly 200 men who were suffering from scurvy. These men are not shown in the return, as they were treated as out-patients. 9 men were discharged by court-martial.

Principal Causes of Mortality.

10. There were 5 deaths—4 from cholera and 1 from enteric fever.

Influence of Rainfall.

11. This was felt in an increase in admissions from intermittent fever and bowel affections.

Epidemics.

12. Cholera twice visited the regiment; I have already noticed it.

13. Vaccination was carried on: the quality of the lymph was generally bad throughout the year. The total vaccinations were 39; successful 17, unsuccessful 22.

14. I think an increase of pay would attract a better style of men; as it is, we have a majority of Konkanees, of whom I wrote as follows in my last report:—"They do not bear fatigue well, they are very docile, and have strong house affections, which induce them to live on the poorest grain to enable them to remit money to their relations in their native villages." I would modify the first portion of the opinion, for since then I have marched with them for five weeks, and found them in no way inferior to the others in marching powers.

General Health and Physique of the Men.

Treatment of Disease when special.

15. I was very much disappointed with the hydrate of chloral in cholera; it did not allay spasm in any one case; it was injected hypodermically and given internally. In April the first case was treated with it and died; the second case also took chloral, but with no relief to

the cramps, which were unusually severe. As a last resort, in hope of giving relief, I bled the patient in the left arm; 4 ounces of black blood was all I obtained. In half an hour the relief was very marked, the pulse became more distinct, and his temperature rose one degree, and the man eventually recovered. I am acquainted with all objections that can be made to the use of blood-letting in cholera, and I do not consider it a cure for the disease; but where cramps are very severe it is a very valuable adjunct in treatment.

16. The pay of the sepoy is insufficient. The invaliding system is radically wrong in principle; oil ought to be supplied the sepoy for softening the ammunition boot; and, lastly, a compulsory system of registration of deaths ought to be introduced in the Mhow bazaar, together with a weekly note of the height of the sub-soil water.

17. The medical pupil daily writes out a portion of a standard medical work, and makes out the morning report; he also copies letters into the letter-book. He is questioned daily by the bed-side in materia medica, and the value of symptoms and the treatment ordered is explained to him.

REMARKS BY DEPUTY SURGEON-GENERAL D. WYLLIE, M.D.

Health was better than in previous year, and surroundings were tolerably satisfactory, unless that the Mhow lines are insanitary, narrow, and confined, the huts as usual deficient in plinths and in capacity. Nearly half the men showed evidences of scorbutic taint at the beginning of the year, assigned mainly to dearness of vegetables—a condition that was soon remedied by the free use of lime-juice.

The Mhow hospital has ample and good accommodation; at date of my inspection, December 8th, the wing was under canvas at Neemuch, marching on Nusseerabad, with only 4 trivial foot-sore cases in hospital. Vaccination was practised, but results mainly defeated by bad lymph.

H. M.'s 25th Regiment N. L. I.

MHOW.—In medical charge of Surgeon M. HEFFERNAN; Strength, 517.

1. The regiment was stationed at Mhow during the year, and no movement of head-quarters took place. A wing at Indore from the 1st to the 15th January and from the 12th July to the 31st December 1875. I am not aware of any changes of importance, and bearing on the health of the troops, having been made during the year. The climate during the year was pleasant, and the temperature, on the whole, differed very little from that of 1874. The cold east winds in December and January are very trying, and likely to cause lung and hepatic affections. The monsoon was rather late, and a great scarcity of water was at one time apprehended; but a rainfall of 15 inches and 82 cents in September banished all fears on this account. The total rainfall during the year was 39 inches and 5 cents.
2. The average depth of the sub-soil water from the surface during the year, in a regimental well, measured on the 15th of each month at 5 o'clock A.M., was 28 feet 3 inches. The following table shows the depth of the sub-soil water in regimental well No. 3, about 110 yards from and somewhat lower than the lines:—

Regimental well No. 3, outside lines.	Depth of Water.	Date and Hour of Measurement.	Distance of Sub-Soil Water from Surface.		Rainfall since last Measurement.
	Ft. in.		Feet	in.	In. cts.
	3 2	15th February, 5 A.M.	33	10	...
	3 1	15th March do.	33	11	0 10
	4 0	15th April do.	34	0	0 28
	3 6	15th May do.	34	6	0 75
	5 0	15th June do.	33	0	5 8
	7 0	15th July do.	31	0	8 10
	7 6	15th August do.	30	0	6 11
	15 0	15th September do.	23	0	15 82
	14 0	15th October do.	24	0	0 23
	12 6	15th November do.	25	6	...
	12 0	15th December do.	26	0	0 48

The sub-soil water-level in the lines is, at all seasons of the year, so far from the surface as to have little influence on the health of the inhabitants. Ague was most prevalent in June, when the water was 33 feet from the surface.

3. Are old, and built without plinths on black soil, which retains moisture for a considerable time, and, consequently, they are damp and unhealthy in the rains. The accommodation during the year was sufficient. The regimental bazaar is kept clean and in a good sanitary state. The men, however, draw but a very small quantity of their supplies from it, as they can obtain them from the sudder bazaar, which is quite convenient. The drainage is all surface. A small portion of cantonment in the immediate vicinity of and to the south of the lines is badly drained, and on the verge of this is a garden in which weeds and maize vied with each other in the luxuriance of their growth during the rains. The culvert, which carries the rainfall across the road from this portion of camp, is not placed at the lowest point, and as a consequence a considerable quantity of water is left behind to sink into the ground, which is here fissured in all directions. A new culvert in the proper site is required, and the patch of underwood, called a garden, should be cleared away. In the corner of each hut or its verandah is a bathing place made of chunam, and sloping outwards. From this a small drain runs out through the wall, and opens, sometimes on the surface of the street, but very often into a covered up cess-pool. This is in most cases made use of as a urinal, as well as for carrying off the bathing and other refuse waters, all which either sink into the streets of the lines or are evaporated at the doors of the huts. The custom cannot be prohibited until something suitable is provided in its place.

4. The trench system of latrines was used by the Native troops during the greater part of the year; but in the rains the permanent ones were opened. The ground space available for this system at Mhow is not sufficient to carry it out without some danger of water pollution. The space at the disposal of the 25th Regiment may be said to be about 250 yards square, having the Satair Nullah to the north, the regimental wells to the south, and the rifle range and permanent latrines to the west. It is, therefore, very limited, and in a few years the same ground will have to be used over and over again. Even if the water in the wells escape contamination, will the soil retain its deodorizing and assimilating powers for an indefinite period, or will it after a time become saturated and emit noxious gases, as suggested by Deputy Surgeon-General Wyllie in his report for 1874? I am strongly of opinion that the latter event will take place. I beg most particularly to call attention to the following fact in connection with trench latrines, which shows them to be very dangerous. In August last a lady of the regiment in my charge was attacked by cholera. On entering the house, the front doors of which were open at the time, I perceived a foul sickly odour, which could not be accounted for. Two medical officers, called in consultation, at once detected it also. We could not imagine where it came from at first, but on going to the front of the house we discovered its source. The wind was blowing from the west, and almost due west of the house is the 3rd (K. O.) Hussars' grass-cutters' trench latrine. Cholera prevailed about the time amongst the grass-cutters, as I have been since informed. I have no doubt that the lady's illness was due to breathing the impregnated air from the trench latrine. In addition to the facts of the system being filthy and more or less dangerous, it does not supply the want for which it is intended, as, at least, half the men take their lotas and go out into the nullahs and fields rather than use the place. I think the system thoroughly unsuited to a large permanent cantonment; and Mhow, where money has been largely expended on palatial barracks and hospital, is now flanked on all sides by trench latrines.

5. The water-supply, which is derived from wells, is of fair quality, but it was rather scarce in the hot months. Two temporary dams were thrown across the Satair Nullah, and by this means a certain amount of water was retained, which the sepoy used for bathing and washing purposes. It seems strange that a large and important military station like Mhow should be allowed to go on year after year, depending on a few wells for its water-supply. The wells are, of course, dependent on the rainfall, and when the latter is scant, the former run dry. The cavalry and artillery horses have been on more than one occasion sent out of camp on account of a scarcity of water.

6. The several articles which compose the diet of the sepoy were obtainable at Mhow in abundance, at moderately cheap rates, and of good quality. The compensation granted to the men averaged from 1 Rupee to 1 Rupee 7 annas. Vegetables were more plentiful, and could be procured at cheaper rates than in 1874. Although good food was obtainable at moderate rates, I suspect many of the men were underfed, and particularly the recruits. The latter, most of whom are growing lads, ill-fed, anæmic, and in many cases showing a scorbutic taint, join from their

native villages, and are at once cut 3 rupees a month for an outfit. Nothing could be more unwise than this, for you compel the young lad, whom you wish to develop into a stout healthy soldier, to live on 4 rupees a month for the first year of his service. The consequence of this proceeding is, that he cannot feed himself on his pay, he is weakly, and on the slightest exposure he gets fever and is admitted into hospital. The recruits and men under 2 years' service furnished 80 admissions into hospital from fever and 2 for splenitis during the past year.

7. The duties were considerable, as the men were kept pretty constantly at drill and parade work. In addition to this the lines were repaired, and all the tiles turned by the sepoys in the hot weather. I certainly attributed some of the fever cases to exposure at tile-turning. There was little or no amusement, a few games of cricket being the only thing I am aware of.

8. The left half battalion marched from Indore to Mhow in January, and the right half battalion from Mhow to Indore in July 1875.

9. During the past year both the hospital and its surroundings were healthy. The ventilation is good. There has been no over-crowding, the average daily sick being 22·58, and the space for their accommodation 32,480 cubic feet, or about 1,476 cubic feet per patient. There have been no changes made in the building since last year. A small ward for eye and other particular cases is still required. It is impossible to treat acute bronchitis successfully during the cold months in a large ward all windows and doors; a small one, in which the temperature can be raised to a certain point, is required. The dead-house is still in the same condition as reported last year, devoid of all suitable fittings, and having only a common clay floor. The latrine is now provided with a channel in the rear, which carries all the fluids that do not fall into the privy pans into a dampered receptacle placed in a small tank outside the building. The place is kept clean and in a good sanitary condition. There is no particular well marked off for the hospital. The water-supply, which was drawn from the wells in the vicinity, was sufficient, and the quality good.

10. I am glad to be able to report that a great improvement in the health of the regiment has been steadily going on since our arrival at Mhow. A number of men, who were broken down chiefly by Mehidpur fever, have been pensioned, and the others may be said to have now nearly shaken off the effects of the ague contracted at that station. There are, of course, a few men still in the ranks whose systems have not thrown off the malarial blood-poisoning; and these are the subjects who on the slightest exposure furnish admissions into hospital from ague, splenitis, and bronchitis. On the whole the health of the regiment may be considered as having reached a normal standard. The average strength of corps during the year amounted to 517, the total number of admissions into hospital to 744, the daily average of sick to 22·58, the proportion of sick to strength per cent. to 4·36, the proportion of admissions to strength per cent. 143·88, the proportion of treated to strength per cent. 145·82, the percentage of deaths to strength to 0·19, and the percentage of deaths to treated to 0·13. The following table shows the percentages of sickness and mortality for the last three years :—

Year.	Strength.	Admissions into Hospital.	Sick to Strength per Cent.	Average Daily Sick.	Admission to Strength per Cent.	Treated to Strength per Cent.	Deaths to Strength per Cent.	Deaths to Treated per Cent.
1873 ...	337	1,435	13·14	44·29	425·81	430·26	0·59	0·13
1874 ...	472	906	6·36	30·04	191·94	199·57	0·63	0·31
1875 ...	517	744	4·36	22·58	143·88	145·82	0·19	0·13

Fevers were, of course, the principal cause of sickness, and nearly half the admissions into hospital were due to them. There was, however, a great decrease as compared with the three preceding years, and particularly of the intermittent variety. Only 147 cases of ague were admitted. This shows the great benefit the regiment has derived by its change from Mehidpur, where, with a strength of nearly 200 less, it furnished 140 cases of ague in one month—October 1873. Of the 147 cases of ague admitted, 143 were discharged to duty, 4 were sent on sick leave, and 1 remained under treatment on the 31st December 1875. The admissions from ague were chiefly furnished by men who had previously

suffered from the disease at Mehidpur. The sub-soil water-level did not seem to influence the amount of malarial fever in any way; but, as before stated, this is always so far from the surface at Mhow that it is no criterion of whether it does or not in other stations. Cinchonidine was tried for a considerable time both in large and small doses, and its efficacy in stopping or curing intermittent fever was found very poor indeed. Simple continued fever

Simple continued Fever.

of a mild type was the most prevalent disease during the year, and caused 173 admissions into hospital. The disease occurred chiefly amongst the recruits and young soldiers, and was undoubtedly due to bad and insufficient food and exposure combined. Bronchitis prevailed to a considerable extent amongst

Diseases of the Respiratory System.

a certain class of men, and 60 cases of it were admitted into hospital. It occurred chiefly in the rains and amongst old men broken down from malarial blood-poisoning, most of whom have since been pensioned. I have, in all cases where the system was saturated with malaria, found the bronchitis of a most intractable nature; and in this regiment it has hitherto been a very common sequence of

Pneumonia.

ague and a great cause of invaliding. 2 cases of pneumonia were treated, and 1 proved fatal. The fatal case occurred in a man who tried to pass the regimental invaliding committee a short time previously, and who in all probability had starved himself for that purpose. He suffered from ague in the lines, on which pneumonia supervened; and when taken to hospital he was in a broken-down state, and sank rapidly. 17 cases of dysentery

Diseases of the Digestive System.

Diarrhoea and Colic.

were admitted, and 16 discharged to duty; 1 of a chronic type remains under treatment. Diarrhoea caused 6 admissions and colic 53; the colic cases occurred chiefly amongst the recruits. An interesting case of acute glossitis was treated in October: the patient came to hospital complaining of fever and sore throat. Inflammation of the tongue set in rapidly,

Glossitis.

and in a few hours that organ was swollen to such an extent that it not only filled the whole mouth, but protruded beyond the lips. The glands in the neighbourhood were all inflamed, and there was urgent dyspnoea. Leeches were freely applied in the neighbourhood and the tongue itself, the bowels cleared out by enemata, pounded ice kept continually in the mouth, and quinine and calomel afterwards administered, and the man made a good recovery. A case of hepatitis was treated, and, the disease

Hepatitis.

becoming chronic, the patient was granted 6 months' sick leave. The climate of Mhow does not suit hepatic complaints. The chloride of ammonia utterly failed to give relief in this case. There were 18 admissions from splenitis, and a few of these

Splenitis.

were furnished by recruits; but the greater number were amongst the men who suffered from ague at Mehidpur. Chronic rheumatism contributed 21 cases of admission; this disease occurred chiefly amongst men of over 15 years' service. A young sepoy of

Rheumatism.

only 4 years' service suffered from it for more than a year, and had to be finally discharged. He stated that he had been subject to pains in his joints since he suffered from dengue at Mehidpur in 1873; but there was also a history of syphilis and gonorrhoea. 13 cases of muscular rheumatism were admitted, and, as usual, the subjects of this complaint were men who had served the required period entitling them to pension. A medical man is helpless in these cases; for, although he believes the patient to be shamming, he cannot positively swear it. 8 patients were admitted for mumps and 2 for chicken-pox. There were 6 admissions for soft chancre, 2

Syphilis.

for suppurating bubo, and 6 for secondary syphilis. A case of paraplegia was admitted in May, and continued under treatment until the man was invalided in November. The disease came on slowly, and at first looked like locomotor ataxy; but, after a time, complete loss of

Paralysis.

power and sensibility in the lower extremities set in, and bed-sores formed over the sacrum. There was no history of syphilis or injury, and no symptoms of inflammation or congestion of the cord or its membranes, and, in fact, the cause of the disease was not ascertained. A year before the patient suffered from pain in the dorsal region of the spine, which he stated was followed by a feeling of numbness in the legs. 2 cases of cholera occurred during the

Cholera.

month of May; the disease had previously appeared in the 16th Regiment N. I. The first case in the Native infantry lines occurred on the 10th of April, and the subject was a recruit who had lately joined the 16th N. I. He came through Choral Chowkey, where the disease prevailed at the time, rested 4 hours in the Mhow bazaar, and was attacked 2 days after entering camp. Another of the same party was attacked a few days afterwards. Cholera prevailed amongst the workmen on the Holkar State Railway, and to a certain extent in the cantonment of Mhow during the hot months. In August a slight outbreak occurred in the 68th Light Infantry, and the regiment was moved out into tents on that account. A lady, the wife of an officer in this regiment, was attacked in this month; the probable cause of her illness I have already stated. 3 cases altogether occurred in the regiment, 2 amongst the

sepoys, and 1 that of the lady above mentioned, and all of them recovered. No special line of treatment was pursued; but symptoms were treated as they appeared. Hydrate of chloral was found useful in relieving cramps, producing sleep, and also it seemed in one case to encourage re-action.

11. Only 1 death occurred: a man committed suicide by shooting himself in the lines. 43 men were invalided and pensioned, and 1 man discharged with a gratuity. The chief causes of invaliding were debility, bronchitis, enlargement of the spleen, and old and worn out. The three first-mentioned complaints were in a great measure due to previous suffering from ague at Mehidpur. 5 men of less than 5 years' service were discharged as unfit without a gratuity and 4 by court-martial. 13 recruits, who were passed by committees at the Presidency and in the Deccan, were brought before medical committees at Mhow and declared unfit for the ranks.

12. The prevailing diseases during the year were fevers and lung-complaints. The fevers were mainly due to three causes, and these were malarial blood-poisoning, insufficient food, and exposure. The lung-complaints, chiefly bronchitis, were due to the exposure to cold and damp of men whose systems exhibited a well-marked malarial cachexia.

13. Pneumonia supervening on ague in a broken-down and badly-nourished man, caused the only death which occurred in hospital during year. He was a Mahratta Hindu.

14. The rainfall of the year was only a little over 3 inches less than that of 1874; but the monsoon came late, and the climate was hot and oppressive in June, and, consequently, there was an increase in the amount of fever in that month. During the rains, owing chiefly to the damp state of the lines, there was an increase in the amount of fever and bronchitis. The rainfall was sufficient for the crops, water-supply, and the wants of the country generally.

15. In the hot months cholera prevailed in an epidemic form on the works of the Holkar State Railway to the east of Mhow, at Indore to the north, and at Mehidpur to the west or slightly north-west; yet only a few cases occurred amongst the troops here. A cordon of sentries was thrown round cantonment, and no one was allowed to enter except by the main roads. On these roads temporary hospitals with a medical subordinate and guard of police were established, where all suspicious characters and people coming from tainted localities were detained. The first cases, which occurred in the Native infantry lines, were amongst men lately arrived in camp who came through Choral Chowkey, where the disease prevailed. The 2 sepoys of this regiment who were attacked, had not been out of camp for a considerable time previously, and lived in different parts of the lines. The cases, although occurring about the same time, had no connection with one another. The third case occurred long afterwards, and was, in my opinion, caused by impregnated air from a trench latrine, which blew right through the patient's house.

16. Vaccination and re-vaccination were steadily practised, and there is not a single unprotected man at head-quarters. 18 children were vaccinated, and of these 17 were successful and 1 unsuccessful. 22 recruits were re-vaccinated, and of these 14 were successful and 8 unsuccessful.

17. The general health has improved wonderfully since our arrival here, and particularly within the last year. I have alluded to the great decrease in ague. In 1873, at Mehidpur, from a strength of 337 there were 713 admissions into hospital from it; while during the year under review, with an average strength of 517, there were only 147 men admitted for that disease. I consider the climate of Mhow more subject to rapid changes of temperature than that of Mehidpur; yet the men are, comparatively, free from intermittent fever here. This fact has an important significance as regards the existence, or not, of local malaria. The physique of the men has been very much improved also by the change. The young sepoys who were constant sufferers from intermittent fever at Mehidpur and Dhulia, having to a great extent shaken off that disease, are now filling out. The recruiting during the year was very carefully carried out, and all unlikely lads were brought before a medical board at Mhow on their arrival at regimental head-quarters and rejected, although they had been already passed by boards at the Presidency and in the Deccan. With all this care in recruiting the proper stamp of man is not obtainable, and we need not be surprised when the pay of the sepoys is compared with that of the same class of men in civil employment. The only attraction is the pension, which the Mahratta sepoy hopes to obtain after 15

or 16 years' service. A higher scale of pay and a pension, which increased according to the number of years a man served over 15, would induce a better class of men to enlist, and prevent malingering.

Treatment of Disease when special.

18. Cinchonidine was tried as a substitute for quinine in intermittent fever, and was found to be far inferior to that drug.

19. One of the most important subjects brought to notice in this report, is the great improvement which has taken place in the health of the men

Resumé of the whole.

owing to the decrease in the number of admissions from ague since our arrival at Mhow ; I anticipate a still greater improvement in 1876. The food, particularly of the recruit, is a subject of very great importance, and one which urgently calls for some remedy. I have already noticed the evil effects of putting these men under stoppages during the first year of their service. It is impossible for them to procure anything but grain food, on their pay, at a time when they require good milk, vegetables, and meat to nourish their growing tissues. Every recruit should have a free kit to start with. The trench latrine system does not suit the place, and has proved itself to be dangerous.

20. The Native medical pupil has done all the writing and copying of forms. He has been daily instructed by the first hospital assistant in materia medica and compounding ; I have instructed him in the rules of spelling, elementary anatomy, and ordinary diseases about twice a week. I have asked him questions at the bed-side as symptoms or events arose suggesting them.

REMARKS BY DEPUTY SURGEON-GENERAL D. WYLLIE, M.D.

Health was far more satisfactory than in previous year, due mainly to decrease in ague. A number of men, as the report mentions, "who were broken down chiefly by Mehidpur fever, have been pensioned, and the others may be said to have now nearly shaken off the effects of the ague contracted at that station."

Lines indifferent, damp, and unhealthy in the rains ; cubage of each hut about 800 feet ; water fair, but the supply occasionally scarce ; food moderately cheap ; duties heavier than average ; permanent latrines during the rains, at other seasons trenches.

Vaccination and re-vaccination were steadily practised.

The hospital, inspected 23rd December, has ample accommodation,—better adapted, however, for Europeans than Natives, particularly in the cold season, when bronchial affections are common. Establishment and equipment complete, as well as out-offices ; but dead-house without the necessary fittings.

Dr. Heffernan's report is full and satisfactory. The system of trench latrines, it is mentioned, "does not suit the place, and has proved itself to be dangerous"; and there are some observations deserving of consideration on the injurious effects on health and physical development resulting from the heavy stoppages to which recruits are subjected.

Wings H. M.'s 16th and 25th Regiments N. I.

INDORE.—In medical charge of Surgeon-Major T. BEAUMONT ; Strength, 217·9.

1. The Native troops stationed at Indore during the year were the left half battalion, 25th Regiment N. L. I., from 1st to 12th January, which were relieved by the right half battalion 16th Regiment N. I. on that date. The latter remained till the 15th July, when they were relieved by the right half battalion of 25th Regiment N. L. I., now at Indore.

2. The health of the Native troops stationed at Indore during the year has been very good. Except intermittent fever of a mild type there has been no disease attributable to climate.

3. Water-supply very good and plentiful from two wells near the lines. The wells are sunk through several feet of solid rock : so the source of the water-supply is pure. The wells are on elevated sites, and are not exposed to contamination from surface or other drainage.

Food.

4. Supplies of food good and abundant ; but the prices are usually $\frac{1}{4}$ th, at least, higher than in most Bombay stations.

5. The duties are moderate, and do not appear to have any injurious effect on the health of the men. The men seem to have scarcely any amusements: a few go out shooting occasionally. The lock-up rooms are very good, but scarcely ever occupied.

6. The detachments made no marches during the year, except when on relief from Mhow to Indore.

7. There is a small permanent latrine for the hospital, which is kept very clean. The soil is buried in the regimental latrine trenches.

8. The hospital water-supply is good and plentiful from the wells before noted.

9. There has been no sickness, except a little mild intermittent fever. 1 death occurred from fatty disease of the heart in a Hindu. 15 men were ordered to head-quarters and invalided there; they were all worn-out men of from 20 to 30 years' service. One man was discharged by court-martial.

10. During the continuance of the rains this had no marked influence on the health of the men. In July, August, and September, in which nearly all the rain falls, the admissions for all causes was considerably below the average. In August the admission for all causes was 14, for fevers 5, in September 11 and 5 respectively—the average for the other 9 months being, for all causes, 26, for fevers 8.5. In October, when the ground began to dry up after the rains ceased, the admissions for fevers rose to 20, but fell again to 4 in November.

11. Cholera was more or less prevalent in the city and station of Indore from April till November; none of the troops were attacked. There was no other epidemic.

12. All the children with the detachments have been vaccinated.

13. General health very good; physique quite up to the average. Nothing special, except the use of subcutaneous injection of quinine for fever, which treatment was very successful.

REMARKS BY DEPUTY SURGEON-GENERAL D. WYLLIE, M.D.

Health was less satisfactory than in previous year, chiefly from increase in bowel and pulmonary complaints, as well as in rheumatic affections and injuries. Ague shows decrease

Surroundings sanitarily fairly good; the men's huts, however, have the usual defects of insufficient capacity (640 feet), and natural drainage is defective. Water-supply by wells, abundant and very good.

Hospital, inspected December 21st, has suitable accommodation, and, although somewhat limited, it was sufficient. Establishment and equipment complete. Vaccination was attended to.

H. M.'s 3rd (Queen's Own Regiment) N. L. Cavalry.

NEEMUCH.—In medical charge of Surgeon-Major C. J. F. MACDOWALL; Strength, 316.

1. The head-quarters of the regiment have remained at Neemuch; a squadron detached at Nusseerabad has been relieved from hence; also small parties out-posts at Bothleganj and Mulharghur.

2. The water in the wells seems to be generally within about 14 feet of their mouths, and the Executive Engineer states that the level in the tank has no influence on that of the wells. Indeed, these wells being on the solid ridge of trap occupied by the barracks, and the tank being well away from it, the feeding is not the same. It may with confidence be said that almost all the wells are locally fed.

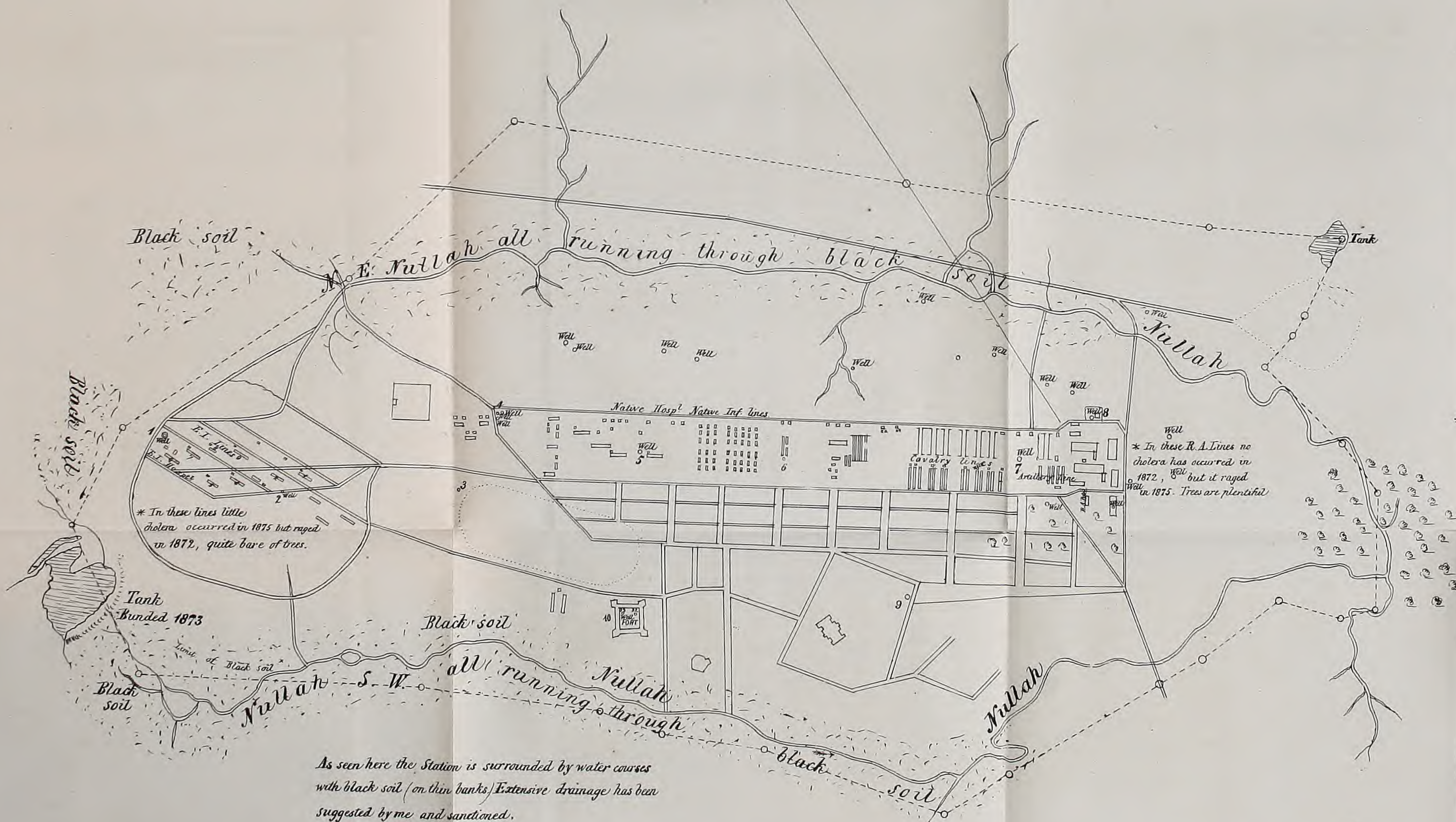
CANTONMENT of NEEMUCH

Scale of 400 Yards to an Inch.

To accompany Annual Report, Native 3rd Light Cavalry Regiment.

Table showing depth of Water in Wells below surface of Ground (Platform of Well)

Well No.	1875				1876	
	Sept	Oct	Nov	Dec	Jan	Feb
1	4	4.6	9.2	8.3	9.10	
2	6	9.6	7.6	8.7	10.6	
3	6	6	7.2	8.2	11	
4	7	4	6.2	6.10	9.3	
5	14	6.2	9	10.4	14	
6	13	6.10	7.2	8.6	11.7	
7	11	6.2	8.2	8.3	11.6	
8		3.10	8.1	9.6	13.6	
9	12	4.5	1.1	8.3	13.3	
10		0.3	11.5		20	
11	7			8.9	10.3	



As seen here the Station is surrounded by water courses with black soil (on thin banks) Extensive drainage has been suggested by me and sanctioned.



During the rain the water rises in them to within a few feet of the surface in some, but much less in others, according as they are situated in or near under-ground streams between rocky barriers or in the trap tufa itself.

3. There was no side drain on the main road, viz., on the side where it skirts the bazaar, and the rainfall frequently flowed into the bazaar at the entrance of the streets. A good open saucer drain, with culverts at the main streets, has been made, and the bazaar was kept much drier in consequence, it only receiving thus the direct rainfall. One of the bazaar drains flowed into the western rivulet, sometimes (in years of draught) used for drinking, *above* the bund. I was successful in getting a cutting made which diverted the outflow of this drain to a point considerably below the bund, thus securing the water stored there from, at least, one source of contamination. The eastern rivulet is not used for drinking. All the wells in cantonment are surrounded by masonry platforms.

Drains.
Water-supply. 4. The water is drunk solely from 4 wells, sufficiently protected from pollution, and is considered good. It has been sent to Bombay for analysis.

5. The number of fever cases is only about half of the number which occurred last year, viz., 144, instead of 269; that local injuries from kicks, fractures, &c., occurring on parade make up the next largest item; then follow skin diseases from saddle-friction, &c. &c. There were 13 cases of lung diseases as is usual in the cold months. A case of aneurism of the aorta died. Dysentery and diarrhoea were not common; but in the rest of the cantonment cholera was very prevalent and severe. This apparent vicariousness of cholera instead of fever is, at least, remarkable. The rains were less, and began later than last year, which may in some way account for the lesser quantity and later occurrence of fever. Sudden variations of temperature and malaria, also accidents from kicks of horses, falls on parade, &c. The difference between the day and night temperature is very marked and sudden.

6. The rainfall was considerably above the average, viz., 42 inches 66 cents (last year it was 57 inches, when fever was very prevalent). This year cholera appeared. The average rainfall is 30 inches. The rain occurred and lasted a month later than usual. It has not increased the fevers this year, which have been much less numerous among Natives. Cholera did not occur last year with a rainfall of 57 inches, but raged this year with a total of about 42 inches. It (the rainfall) only, therefore, indirectly favoured the epidemic. Cholera raged in the Royal Artillery; no cases in the cavalry. A few cases in the 10th Foot and 24th N. I.

Epidemic.
Vaccination. 7. Successful (primary) 30; successful (re-vaccination) 22.

General Health and Physique of the Men. 8. Very good; but, since recruiting in Hindustan has been prohibited (save to a limited extent), the physique has somewhat deteriorated.

9. With the exception of the unsuccessful treatment of fever by cinchonine there was nothing in the treatment of this disease worthy of remark. A sowar was brought into hospital one morning, and soon after died. He had burst an aneurism of the aorta, as was proved at the *post-mortem* examination. He fell from his horse a fortnight previous, but the state of the sac proved the disease not to have been originated but aggravated by this circumstance. Dysentery has been successfully treated by ipecacuanha in 15-grain doses, accompanied or preceded by a small dose of morphia. One case of fever presented, after the first attack of shivering and burning heat, a state of such complete collapse, with vomiting and purging (not white) that so closely resembled cholera, that I was for a day in doubt. The same symptoms, however, continued, viz., a shivering fit, succeeded by great heat and subsequent collapse for 4 days, with only a slight remission in the morning, so that the nature of the case, which had been treated from the beginning with quinine and stimulants, soon became apparent. He continued to have slight accessions of fever for a few days more. Generally speaking, fever cases have been much complicated with vomiting this year, and although less numerous have not been of a less severe type, rather the contrary, than last year. Quinine has been successful in all cases after the vomiting. Headache and pains in limbs had yielded to a mixture of anodynes and purgatives, with emetics, in cases where they were indicated. I have found a combination of anodynes and quinine to greatly facilitate the cure of fever. Among the paupers of the bazaar who were treated in the staff hospital, a large tumour was extracted from the orbit; but as its attachments were to the supra-orbital plate and its neigh-

bourhood, and although I removed the left lachrymal and nasal bones (both carious from pressure of the tumour) and scraped the carious bone away from supra-orbital plate, I fear the return of the tumour. It was decided in consultation that nothing more could be done at present, at all events in so old a woman. During the cholera epidemic in the bazaar and Royal Artillery a bottle of a mixture of known strength containing chloroform, morphia, sulphuric ether, and tincture of Indian hemp suspended in caromel (a solution of burnt sugar) with a little mucilage, or in treacle, was given the hospital orderly, who lives in the lines, with a proper measure. Every man suffering from diarrhoea immediately got a dose from him (as they were all ordered to apply at once) and sent to hospital. This precaution proved to be highly beneficial; but whether it had any part in keeping cholera from the regiment, it is impossible to say.

10. As the station is out of the tropics it was natural to expect that cases of bronchitis (12) and pneumonia (1), pleurodynia (1), should occur. But the most remarkable circumstance is that, during the epidemic of cholera in the Royal Artillery close by, the 3rd Cavalry Regiment escaped untouched. Fevers both amongst Europeans and Natives have been much less numerous than last year, but not less numerous than before the tank was rebounded (amongst 2 Europeans) in 1872, although cholera has seemed to have replaced them. This vicariousness of cholera and fever is striking.

11. This year the regiment was exceptionally healthy, although the lines and huts are bad in every way; the latter too small, low, not raised on plinths, and the former not laid out at sufficiently large intervals. Nevertheless the station cannot be said to have proved inimical to the cavalry. It is to be remarked that, although the rainfall this year was not so great as last year's (viz., 43 against 57), the water in the wells is nearer the surface than in 1874, because these rains lasted one month longer. There was one long break; but the monsoon began about the same time (by a very heavy fall) as last year, somewhat later, viz. 15 days. It would appear that Neemuch is situated in, perhaps, one of the lowest parts of a vast valley, bounded on the south by the Aravulli range of hills, and the high range of land in the direction of Odeypur on the west, to the north the boundary is the high uplands of the plateau which slopes towards Delhi, and on the east there are low ranges or elevations between Neemuch and the great rivers that serve to drain the large extent of country described, and which in some places is partially cut off from such drainage. The water in the highest part of Neemuch, near the European barracks, was this year within 4 or 5 feet of the surface (in December). The levels of the well water near these barracks do not correspond with the level of the water in the tank. The level of the tank is higher during the months of January, February and March, which are the only favourable ones for observations, the consumption being so great in the hot weather and the water being flush in wells and tanks during the rains.

Water-level near European Barracks.

	Reduced Level of Platform.	Reduced Level of Water		
		January.	February.	March.
Parade well	113.10	100.00	98.40	97.05
Hospital well	107.36	93.11	90.80	88.86
Tank ... ..	...	101.25	100.61	99.68

It is maintained that the difference of these levels show the independence of their water-supply, as during the whole night the tank-level is never attained by the well water. It is, however, indubitable that the tank raises the level of the water in all the black soil below and above it, and I have for two years successively recommended extensive and expensive drainage (which is now at last sanctioned) in the beds of both rivulets which skirt the cantonment. In my cholera report I have shown the great diminution of fevers this year amongst Natives; but as the water-level is still high (near the European barracks especially), we may (although the usual fever time is past) test whether Petinkoff's theory of the subsidence of sub-soil water accompanying fever be true. With regard to cholera the subsidence of sub-soil water has distinctly (in Neemuch) played no rôle whatever; on the contrary it only continued during the rains, and especially when the wind was from the eastward, and when the water-level was at its highest.

Sub-soil Water-Level.

Locality or Designation of Well.	Date and Hour of Measurement.			Distance of Sub-soil Water below Surface of Ground.		Rainfall from last date of Measurement.	
				Feet	in.	In.	cts.
No. 14 Well—perennial supply.	15th March 1875,	6 A.M.	... ..	14	10½	0	88
	15th April	do.	... ..	16	9	.....
	15th May	do.	... ..	18	3	0	50
	15th June	do.	... ..	19	7	3	34
	15th July	do.	... ..	19	9	14	87
	15th August	do.	... ..	15	3	4	48
	15th September	do.	... ..	11	1	18	32
	15th October	do.	... ..	6	0	0	27
	15th November	do.	... ..	8	4	.....
	15th December	do.	... ..	10	10	.....
Total...				.....		42	66

REMARKS BY DEPUTY SURGEON-GENERAL D. WYLLIE, M.D.

Health compares very favourably with previous year. Lines in fair repair, but streets narrow and no plinths; cubage of huts 880 feet; water-supply by wells abundant and good; masonry latrines. The hospital, inspected 7th December, is a disused barrack; that proper to the corps being occupied by artillery. There is, ordinarily, ample room; no contagious ward, nor dead-house; establishment and equipment adequate. Vaccination and re-vaccination were duly carried on. Dr. McDowall's report, accompanied by one descriptive of the cholera outbreak, shows care and attention.

H. M.'s 24th Regiment N. I.

NEEMUCH.—In medical charge of Surgeon-Major P. W. COCKELL; Strength, 622.

1. The regiment has not moved this year. Two guards of honour, consisting of two full companies with European officers, were detached to Nimbharia and Chittur; they were only away one week.
- Location and Movement of Corps.
2. The clay of the soil, mixed with a peculiar volcanic detritus called trachite, has a peculiar property of retaining water, and the sub-soil water is always found at a depth of 20 feet from the surface—sometimes, as at the end of the rainy season, within 6 feet or close to the surface.
- Soil.
3. The water is good, very little animal matter in it, and also very few chloride salts.
- Water.
- Food abundant, cheap, and of good quality. Clothing very good, of native manufacture.
4. The duties have not had a bad effect on the health of the regiment. Some of the men employ themselves as carpenters and boot-makers, and there is one very good gold-lace embroiderer.
5. There have been two marchings out this year.
6. The hospitals and surrounding buildings are excellent. There are two buildings of equal size which can accommodate 40 men each; but, except in very trying years, the spare hospital is never used as such. A dead-house is certainly required (and I believe will shortly be sanctioned), as at present there is no room to receive the dead, and if they die in the night they remain in hospital with all the living sleeping near. The hospital conservancy is good. The sweepers are kept constantly employed, and the supply of carbolic acid and McDougall's powder is sufficient. The hospital is supplied with water from a very good well about 50 yards off.

7. The sickness this year has been very slight. Died in hospital 11, out of hospital 2, invalided 25, obtained sick leave 3, discharged by court-martial 1. Of the deaths 9 were Hindus and 2 were Mussulmans.

8. The rainfall last year was 46 inches, less than in 1874 by 12 inches, and the water-mark in the wells was 6 feet from the surface in the month of October; its present height from the surface is 12 feet. On the 1st of March the water was 15 feet from the surface, and we had 88 cents of rain in February. On the 11th of July the water-height was 20 feet from the surface, and we had 10 inches of rain; but the rain had taken some time to be absorbed, for we find that not until the 23rd of September was the water 6 feet from the surface. The last rainfall was on the 30th of September, and on the 6th of October the water was only 5 feet and 6 inches from the surface, and it continued so till the 10th, when it gradually got less at the rate of about 1 inch every day.

9. We had an invasion of cholera this year of a most malignant type, the Natives dying in proportion of 2 to 3 attacked, and the Europeans at the rate of 19 out of 20. The cause of it was not traceable to any known agent. It appeared at different parts of the station at the same time; that is to say, there was no contact of persons previously attacked with healthy persons; it was, therefore, sporadic. 16 Natives died in the bazaar and 2 in the 24th N. I. It is to be noted that there was very little fever this year in the cantonment: so that these two diseases seldom, if ever, appear in the same year at this station.

10. Vaccination has been thoroughly well done in the regiment, but very few cases of re-vaccination were required, as nearly the whole regiment has been vaccinated, or has had the small-pox.

11. The general health of the men has been good. Physically they are a fine-looking regiment.

12. For the special attack of cholera we had 5 detached cholera huts built, large and well ventilated, 12 feet by 12 and 12 high, each to hold 1 person only; they were placed beyond the bazaar on a piece of waste ground near the river. For the two cases that were attacked in our lines a tent was pitched on a vacant piece of ground about 300 yards from the hospital. Every precaution was adopted to prevent the disease spreading.

13. I have only to remark that I consider Neemuch a healthy station, although a long residence here certainly does deteriorate the constitution, but for two or three years the climate would not have a bad effect on the health. After that period Europeans have not the spirit and life in them they had on arrival.

14. The Native medical pupil I had, has gone to the Grant Medical College. He was regularly examined in anatomy twice a week.

Meteorological Observations.

Months.					Barometer.		Thermometer.		Rain.
					Maximum.	Minimum.	Maximum.	Minimum.	
									In. cts.
January 1875	...	...	...	...	29.	28.70	74.	44.	...
February	..	...	...	...	29.	28.90	84.	46.	0 88
March	..	...	...	...	29.	28.62	100.	60.	...
April	..	...	...	...	29.	28.60	107.	75.	...
May	..	...	...	...	28.70	28.50	106.	74.	0 52
June	..	...	...	...	28.60	28.40	106.	78.	3 48
July	..	...	...	...	28.50	28.20	96.	72.	16 11
August	..	...	...	..	28.70	28.50	92.	70.	4 83
September	..	...	...	...	28.80	28.50	100.	71.	20 51
October	..	...	...	...	29.	28.80	86.	65.	0 30
November	..	...	...	...	29.	28.90	82.	62.	...
December	..	...	...	...	29.10	29.	80.	52.	...
Total ...					...	...	...	...	46 63

REMARKS BY DEPUTY SURGEON-GENERAL D. WYLLIE, M.D.

Health much more satisfactory than in previous year, although the return still evidences undue sickness. Lines defective in construction and ventilation; cubage of huts only 500 feet; floors mostly below ground-level; water-supply by wells ample and good; food abundant and cheap; duties moderate; masonry latrines, with tolerably efficient conservancy. The hospital, inspected December 8th, has ample and good accommodation for all ordinary requirements; but there is no dead-house or contagious ward. Establishment and equipment complete. Vaccination was attended to.

H. M.'s 10th Regiment N. L. I.

MEHIDPUR.—In medical charge of Surgeon-Major A. N. HOJEL; Strength, 361.

1. The head-quarters of the 10th Regiment N. L. I. has been stationed in this camp for the past year. In the month of November a detachment of 82 men marched to Jawra to form a guard for the Right Honourable the Governor-General. They were absent from camp for 17 days.
Location and Movement of Corps.
2. The climate, judging from its effects on the health of the troops stationed here, is most trying. Extensive drainage operations, in the form of earth-trenches leading to the river and nallahs, have been completed during the year, so that no doubt the camp will not be as complete a swamp during the next rainy season as it has hitherto been; yet from its position, configuration, and the nature of the soil, I fear that this station will never attain that sanitary state which could be wished. Strangely enough the cold season in Mehidpur, although delightful to the senses, does not seem to bring that accession of health to the men which might be expected: a large number of fever cases continue to be admitted. This was also observed when the 25th Regiment N. L. I. were stationed here, the number of their fever cases in the cold weather of 1873-74 being so large that it was thought advisable to remove the regiment. This state of affairs, recurring, as it does, every year, points indubitably to endemic malarious influences, and it is a question whether it would be advisable to abandon the station altogether, should not be considered with propriety. In any case no troops can be kept here long without suffering greatly in health, and the men's constitutions being undermined by, and the foundation of organic disease in many being laid by, the insidious working of malarious poison. If, having regard to State reasons, the station cannot be abandoned, no corps should be allowed to remain in it for more than two years as an outside limit. If troops are allowed to remain here longer, not only will most of the men's constitutions be seriously impaired, but the State must be a heavy loser by the large sick lists and the number of men that will have to be invalided and pensioned, and the recruiting charges that must be incurred to fill up the thinned ranks. This is a matter which is entitled to the earnest consideration of the authorities. A regiment that has been subjected to the baneful effects of this climate for two or more years, should have a thorough change, be removed altogether from Central India, and stationed in some salubrious place, such as Dharwar, Satara, or Poona, so as to give the men a fair chance of regaining their shattered health.
Effects on Climate.
3. The trench system is in force during the dry months. Last monsoon temporary covered latrines were introduced, which were in every way a marked improvement on the plan of having open trenches during the rainy season. The ground occupied by trenches last year (about 2½ bighas) was cultivated, and produced a fair crop of Native vegetables.
Conservancy and Sanitary Arrangements.
4. The river Supra and surface-dipping wells are the sources of the water-supply to this station; both have been most unfavourably reported on by the Chemical Analyser to Government. In the hot season the wells are nearly dry, and the river water is of necessity the main source of supply. During the rains the men prefer collecting rain water wherever it lodges in pools, to using either the river or the well water. A well is now being sunk near the river in view to a supply of purer water being obtained by filtration.
Water-supply.
5. Supplies are limited, and not always to be had at reasonable rates. There can be no doubt that the great difficulty in communicating with Oojein in the rains, owing to the absence of a made road, tends greatly to enhance the price of provisions at that season of the year. At all times vegetables are scarce.
Food, Quality of, and whether abundant and cheap.

6. The men have been fully employed either at drill or in improving the sanitary condition of their lines by making drains and raised roads through them. Duties, and their Effect upon Health. The returns obtained from the Adjutant's office show the average number of nights the men have had in bed to be $5\frac{1}{4}$; but these figures hardly represent the matter fairly, as there are, at least, 10 men on night duty in the lines that have not been counted in those returns: so that, if these men be counted, the average number of nights in bed would not be over 3.

7. Amusement there has been none. Last year, paper-chases, foot-races, and other sports were enjoyed by the men; there is a gymnasium with the usual appliances close to the lines in which the men frequently passed their leisure time last year. But during the year under report sports and gymnasium alike remain unpatronized: the men say that they feel so exhausted and used up from the climate that when their ordinary duties are over they are only too glad to be down and rest. Some of the men work more or less at trades.

8. The left wing at Agar was relieved during the months of January and February (by companies) by the right wing, which had been stationed at Marches. Mehidpur since the arrival of the regiment from Mhow in March 1873. The movement of a detachment to Jawra has already been referred to.

9. The building that was reported upon last year has continued to be used as the regimental hospital, and no attempt has been made to improve it in any way. The want of light and ventilation are serious defects. Hospital and its Surroundings. As the daily average of sick during the year was 24·3, and the number was sometimes nearly 50, it can well be understood that in a hospital containing only cubic space enough for 20 patients there must of necessity have been over-crowding. A separate isolation ward has been in course of erection during the year, and is nearly completed, but any building less calculated for the purpose could hardly be imagined. Quarters for the medical subordinates and hospital servants have been completed during the year. Accommodation and Defects. But there is no dead-house or bath-room, and it would be well to have these deficiencies remedied. No change has taken place in the hospital conservancy during the past year. The water-supply to the hospital remains unaltered. Hospital Water-supply.

10. The following table contains a comparative statement of sickness, mortality, and invaliding, &c., between the year under report and that preceding it:—

	1874.	1875.
Average strength	366	361
Average daily sick	27·7	24·3
Admissions in hospital	953	858
Deaths...	...	25
Invalided	47	26
Men sent on sick leave	17	21
Percentage of { Treated to strength	263·1	242·38
Deaths to do.	...	6·93
Deaths to treated	...	2·86

The above table shows an improvement in every respect upon last year. It is true there have been 26 deaths, but 24 of these were from cholera and the remaining 2 from heart-disease. It may also be marked that during the year it was necessary to send 21 away on sick leave, as against 17 granted similar leave during the preceding year. There can be little doubt that the comparatively favourable results obtained during the year are owing to the improved drainage and the indefatigable efforts made in other directions to place the station in as good a sanitary condition as possible; yet it cannot be overlooked that the health of the men has been and is essentially bad, for it must be admitted that a daily average of 24·3 sick to a strength of 361 is excessively high for Native troops. The proportion of sick would be much larger if all the men that came to hospital frequently, and took medicine, but still struggled on at their duty, were shown in the returns as admissions. 26 men were invalided at the close of the year. 2 recruits were likewise declared unfit for service two months after joining the regiment—1 on account of defective vision, and the other on account of deafness; both these men were discharged, but, as they did not receive any pension or gratuity, they have not been numbered amongst the "invalided". 2 men were discharged by sentence of court-martial and 7 recruits deserted from the ranks.

11. The numbers and varieties of the diseases treated during the year are shown in the printed summary accompanying this report, from which it will be seen that fever contributed 500, rheumatism 24, diarrhoea 51, cholera 43, hepatitis 3, affections of the skin 23, and injuries 72 admissions. Of the last-named, the greater number were made up of contusions, commonly known as "shoe-bite". 10 cases of dysentery were admitted; all recovered, but it was necessary to send 1 man on sick leave to re-establish his strength. The 3 cases of hepatitis referred to, made good recoveries. The remaining cases admitted, require no special allusion.

12. 25 deaths occurred in hospital: 24 from cholera and 1 from heart-disease, and 1 man died suddenly in the lines from heart-disease whilst dressing for a morning parade.

13. 20 Hindus and 5 Mussulmans died during the year. The proportion of sickness to strength, according to country, will be seen in the following table:—

1875.	Average Strength.	Total treated in Hospital.	Total Deaths.
Hindustanee	39	93	...
Deccanee	89	191	4
Konkanee	190	515	17
Madrasee	21	36	1
Punjabee	12	25	2
Goanese	2	2	...
Guzeratee	8	13	1
	361	875	25

14. The influence of the rainfall on the amount of sickness may be seen at a glance over the following table:—

Year 1875. Months.	Rainfall.	Number of Admissions from all Causes.	Number of Admissions from Fever.	Proportion of Fever Cases to other Admissions.	Average Daily Number of Sick.	Proportion of Sick to Strength.
	In. cts.					
January ... ..	...	54	39	72.2	17.2	19.8
February	0 25	27	16	59.3	15.1	12.3
March ... ..	...	45	28	62.2	15.8	16.1
April ... ..	...	96	75	78.1	25.0	31.1
May	0 60	152	59	38.8	33.0	54.9
June... ..	5 78	73	34	46.5	28.0	32.2
July... ..	14 44	52	30	57.7	17.0	18.6
August	6 38	62	25	40.3	21.0	20.9
September	12 97	90	64	71.1	30.0	31.29
October ... ..	...	76	54	71.1	34.0	33.71
November ... ..	...	69	43	62.3	26.4	23.81
December	0 8	62	33	53.2	29.4	24.9

15. Cholera appeared at this station in an epidemic form on the 1st May, and ceased on the 1st June. 43 of the fighting men were admitted, out of which number 24 succumbed to the disease. 18 of the women were attacked, and 8 died. Of 13 children attacked 7 died; and 8 camp-followers were attacked, of whom 4 died. The course of the epidemic and the measures taken to control it, have already been fully reported on by Surgeon Goldsmith, who was then in medical charge of the regiment.

16.

The protection afforded by vaccination has been so well attended to in former years that the number of vaccinations and re-vaccinations during the year has been small. Of the former there were 9 operations, and of the latter 39.

Vaccination and Re-vaccination.
17.

The physique of the men is all that could be desired, the average height being somewhat over 5 feet 7 inches, and the average chest measurement about 34 inches. During the year 98 recruits joined, and as regards physique they are in no way inferior to their older comrades. Their average age was 19 years, and they had an average height of 5 feet 7½ inches. The general health of the men has already been alluded to as more or less broken down by the effects of climate. The great majority of the men have a cachectic and sickly appearance. They are unable to undergo much fatigue, and scarcely a parade takes place that some do not fall out from sheer weakness and giddiness.

General Health and Physique of the Men.
18.

101 cases of fever were treated with the sulphate of cinchonidine in doses of 20 to 25 grs. thrice daily, but the results were not calculated to enhance the reputation of the drug as a febrifuge. The subcutaneous injection of quinine was resorted to in many obstinate cases of fever, and always with a successful result.

Treatment of Disease when special.
19.

It will be seen from this report that cinchonidine was exhibited in a large number of fever cases, but with anything but favourable results.

Special Observations.
20.

The average time each patient spent in hospital during the year under report was 10 days 12 hours, as against 11 days and 17 hours during the preceding year. If the fever cases alone be taken, it is found that their average stay in hospital during the year 1875 was 6 days 20 hours, against 7 days and 10 hours in 1874. Considering the unhealthiness of this station the hospital accommodation is quite insufficient for even the wing of a regiment. There is only space for 20 men, whereas the number on the sick list is invariably more : at one time there were 74. An isolation ward, with accommodation for 8 patients suffering from infectious diseases, has just been completed. But in its construction no regard whatever has been paid to ventilation ; and when the doors are closed, as they must be in the months when the hot winds are prevalent, as also in the cold weather, air can find neither ingress nor egress, and what is within must remain stagnant, and momentarily become more impure from the exhalations from the patients. The same objections apply to the main hospital, which, in addition to want of ventilation, is in total darkness when the doors are closed. Both 1st and 2nd class hospital servants are now comfortably lodged, as quarters for them have been completed during the year. The want of a bath-room in connection with the hospital is much felt. A dead-house should also be provided.
21.

Due attention has been paid to the training of the medical pupil in clinical medicine, surgery, and therapeutics. He is also practised in the method of keeping the various hospital returns and records.

Instruction of Medical Pupil.

Observations on Level of the Sub-soil Water.

Locality or Designation of Well.	Date and Hour of Measurement.	Distance of Sub-soil Water below Surface of Ground.		Rainfall from Date of last Measurement.
		Feet	in.	
Well in the Officers' Mess Compound.	15th February at 5 A.M.	37	0	...
	15th March do.	38	0	0 25
	15th April do.	38	6	...
	15th May do.	39	6	...
	15th June do.	40	0	1 45
	15th July do.	40	6	9 31
	15th August do.	39	0	14 14
	15th September do.	38	0	11 26
	15th October do.	36	6	4 01
	15th November do.	33	0	...
	15th December do.	36	0	0 8

REMARKS BY DEPUTY SURGEON-GENERAL D. WYLLIE, M.D.

Surroundings sanitarily are very unsatisfactory, and although great efforts have been made, and not without material success, since arrival of the regiment, to remedy defects of site and improve the condition of the lines, &c., still the natural disadvantages of the locality are such as to defeat effectual drainage, partly from hollowness of ground, but mainly owing to beds of clay and marl lying close to the surface. The lines are exceptional in not being back to back, huts 700 feet each of cubage, ventilation defective, and drainage bad, water-supply indifferent at best, food comparatively dear, duties heavier than average, temporary covered latrines during the rains, at other times ordinary trenches. The hospital was inspected 13th December. Establishment and equipment complete, but its accommodation, generally insufficient in autumn, should be extended, and a dead-house provided. A separate contagious ward has just been completed, but the plan differs from others in this circle, and is less satisfactory. Vaccination was attended to. Dr. Hojel's report is careful and precise. He mentions that his experience with cinchonidine in ague has not been such as "to enhance the reputation of the drug as a febrifuge", but that the subcutaneous injection of quinine was tried in many obstinate cases, and always with success. The very malarious character of Mehidpur cantonment is indubitably established by ample observation; and, having regard to the fact that malarial poisoning contracted there has proved a fruitful source of inefficiency, eventuating in invaliding, I fully concur with Dr. Hojel that, on public grounds, the tour of duty at that station should not exceed 2 years.

H. M.'s Right Wing 10th Regiment N. L. I.

AGAR.—IN medical charge of Surgeon R. CALDECOTT; Strength, 223.3.

1. The Right Wing, 10th N. L. I., arrived at Agar by companies, relieving the companies of the Left Wing, which proceeded to Mehidpur. During the rest of the year they have occupied their present quarters. The medical charge of the wing was held until 27th March by Surgeon Keegan, and during the remainder of the year by Surgeon Caldecott.

2. The water-supply is ample, and the quality good. Natural drainage exists throughout cantonment, and is as good as can be. The climate of Agar is a very good one. The hot weather of 1875 was a very mild one, and the evenings and nights were cool throughout. The maximum temperature in the hospital varandah was 106°; this was reached on the 18th and on the 20th May. The rains set in about the second week in June, and terminated in the last week of September. 49 inches and 68 cents were registered. This is 4 inches and 60 cents in excess of last year's rain, which again was considerably above the average. The month after the rains, generally hot and muggy, was exceptionally cool and pleasant during 1875.

3. The huts are built in rows, and are placed back to back in each row; there is a good space of about 30 yards between each row. The capacity of each hut is 744 cubic feet of space, and it contains 78 square feet of superficial area. The ventilation is, as pointed out by Surgeon Keegan, by means of the small door in front. The huts have had new roofs put to them, and with the exception of the want of ventilation are all that can be desired. The surface drainage in the lines is excellent. The lines are built on a good slope on red soil (cellular iron clay), off which water runs very quickly. A new quarter-guard has just been completed, and is now occupied instead of the old one, which has long been condemned. It is a good building roofed with corrugated iron; it measures 36 feet in length and 16 feet in width. Its height from the floor to the ceiling is 19 feet. It has a good verandah, also roofed with corrugated iron. The bazaar is situated to the south of the lines, from which it is about 300 yards distant. It is kept clean, and is well supplied.

4. Conservancy is well carried out throughout camp. The latrines are permanent ones, are kept very clean, and work well. There is a house for the sweepers, who are, therefore, always at hand. The filth is removed in iron receptacles, and conveyed outside camp limits and buried, and the ground afterwards cultivated. The only objection to the latrines is their great distance (430 yards) from the lines. This distance is much too great, and must be a source of great discomfort to the men and their families, especially in the rainy season. There is no rank vegetation anywhere about cantonments. Every place within camp limits

is kept scrupulously clean. The water-supply is ample and good. There are three good wells near the officers' quarters, and one close by the jail guard. There are no imperfections or sources of impurity. The distance of the sub-soil water from the surface varied from 37 feet 6 inches on the 15th June to 18 feet 8 inches on 15th October.

Water-supply.

5. Food is plentiful and good. Vegetables are procurable. Through the exertions of Lieutenant-Colonel Pierce, commanding the wing, a garden has been made for the men amongst the trees to the north of the lines, which promises to answer exceedingly well. It was only commenced about March last; and though there were great difficulties in making a garden on the red soil near the lines, it was finished by July, and is now well stocked with vegetables of every description, which are distributed amongst the men. For this each man is charged only 6 pies per month.

Food.

6. It has not been observed that the duties have had any prejudicial effect on the health of the men. The men get plenty of exercise at parades, &c. Amusements they seem to have none, nor am I aware of their having any occupation when off duty.

Duties, &c.

7. The lock-up room and cell, described in last year's report, will be shortly abandoned. A new building is now in course of completion; it will contain 1,300 feet cubic capacity and 100 square feet of superficial area. It is well ventilated by two gratings.

Lock-up, &c.

8. No alterations have been made in the hospital or its out-buildings. The site is, with the exception of its distance from the lines, an excellent one, and the hospital itself and its out-buildings are all that can be desired. There has been no over-crowding. This may be seen from the fact that during the month of October, when the average number of daily sick was greatest, each patient in the hospital had an average of 69.5 square feet of superficial area and 2,364 cubic feet of space. The quality of the water is good, and the supply abundant.

Hospital and its Surroundings.

9. There were in all 392 admissions into hospital during the year; of these 247 were cases of fever, of which 83 were re-admissions. The average number of days each man suffering from fever remained under treatment in hospital, was 10.85. Chronic rheumatism gave 12 admissions, lumbago 8, dysentery gave only 4, with 1 exception extremely mild cases; diarrhoea 3; 5 cases of syphilis, all of them of considerable severity. It is only surprising that more cases do not occur in the wing considering the great prevalence of venereal disease in the Native city of Agar, which is within half a mile of the lines. 2 cases of pleurisy were under treatment during the year. No deaths. 18 men were invalided; 4 discharged by sentence of court-martial. one man was discharged at his own request.

10. The probable cause of the large number of admissions from fever (62 in excess of the admissions under the same head in 1874) is the fact of the wing having been quartered at Mehidpur during the previous year, where the men suffered greatly from malaria. It was the case when the 25th N L.I. came from Dhulia to Mehidpur and Agar that the wing which came straight here suffered from fever far less than the wing which relieved them the following year after being quartered for a season at Mehidpur.

Principal Causes of Sickness.

11. The rainfall did not appear to have much effect on sickness more than is ordinarily observed. The greatest number of admissions from fever occurred in September (49) and October (38).

Influence of Rainfall.

12. 27 children were vaccinated: every person in the lines at the present time is protected. Re-vaccination was carried on throughout the regiment (women and children included) in 1874.

Vaccination.

13. The physique of the men generally is excellent; their general health is, on the whole, good. As above remarked, the men suffered severely from fever at Mehidpur in 1874, from the effects of which many of them have not yet recovered. It is worthy of remark that these men will shortly be relieved by the men of the left wing, and will have to pass another year at Mehidpur. No cases of great severity have been observed here, but many cases have occurred where the attacks constantly returned as soon as treatment was discontinued.

General Health and Physique of the Men.

14. The results given by cinchonidine sulphas in fever, as compared with those given by quinine, have been carefully observed. Unfortunately there has been no opportunity of testing its value in severe cases, but in the ordinary mild types met with at Agar it appears to act

Treatment of Disease when special.

as efficaciously as quinine. The hypodermic injection of quinine has been extensively employed.

The Native Medical Pupil has been instructed frequently in the uses and doses of the drugs.

REMARKS BY DEPUTY SURGEON-GENERAL D. WYLLIE, M.D.

Health was less favourable than in previous year, owing, as the report explains, to excess in admissions from ague, the wing having been quartered at Mehidpur, where the men suffered greatly from malaria, from which many of them have not yet recovered. Surroundings sanitarily satisfactory; lines in very good repair; huts of 744 feet cubage; water-supply good by wells; food abundant; duties moderate; permanent latrines; conservancy efficient and good. A regimental garden has been established, and supplies the men with vegetables. Hospital, inspected December 15th, has excellent and sufficient accommodation, and is complete in establishment and appointments: the site, however, is inconveniently distant from the new lines.

Squadron H. M.'s 3rd Regiment Light Cavalry.

NUSSEERABAD.—In medical charge of Surgeon-Major W. H. POLLARD; Strength, 122·6.

On the 2nd of March the squadron was relieved by another of the same regiment from Neemuch.

As usual the number of admissions from fever stand highest in the list, being 44 as compared with 84 of last year, showing a decrease of nearly half; but the total number of admissions—152—show only a decrease of 10 as compared with the previous year. One death took place out of hospital from rupture of the aorta—a Mahomedan.

The general health of the squadron has been good during the whole year. The squadron was relieved on the 2nd March last by one of similar strength.

No epidemic of any kind prevailed. There was a marked decrease in the number of admissions from fever, and the cases treated were mostly ague or febricula of the mildest type.

REMARKS BY DEPUTY SURGEON-GENERAL D. WYLLIE, M. D.

Health fairly satisfactory throughout, locality and increased rainfall regarded; lines in good repair; the cubage of huts 700 feet; water-supply chiefly by wells, with few exceptions saline; food moderately cheap.

Mean strength 122·6, total treated 161, daily sick 3·7. Ague contributed 46, or 28·6 per cent. (the equivalent figure for 1874 was 50·6); contusion 31; while rheumatism, dysentery, and bronchitis were somewhat higher than the average, and dracunculus in excess, as shown by 5 cases. No epidemic disease, and no mortality in hospital; but 1 death in the lines from rupture of aorta. None invalided.

The percentage of treated to strength 131·3 to 130·7 in previous year.

Accommodation of hospital ample and excellent, with complete out-offices and adequate establishment. The medical charge has changed hands many times in course of the year; and as the present officer only assumed charge on 26th December, this circumstance accounts for the report being meagre.

H. M.'s 23rd Regiment N. L. I.

NUSSEERABAD.—In medical charge of Surgeon D. A. PATTERSON; Strength, 629.

1. From 1st January to 18th November 1875 the regiment was stationed at Nusseerabad. On the latter date the head-quarters, consisting of the left wing, marched for Mhow, reaching this station on the 24th December. The right wing left Nusseerabad on the 26th December.

Nusseerabad is situated on a slight rise in the plain. It is bounded to the north and north-west by the Aravulli range of hills, and in all other directions by a bare, very sparsely cultivated, and almost treeless plain, only broken here and there by slight and unimportant rising ground or small hills. The soil is sand or gravel over primitive rock. Water is

Topography and Physical Geography.

found at a depth varying from 30 to 40 feet in the higher parts of the cantonment to about 15 feet in the less elevated parts of the plain beyond. It is in nearly every instance of a brackish character, and unfit for drinking purposes. Drainage of camp is good, owing to the natural slope of the ground. The climate is hot and dry, and not unhealthy, except during two or three months immediately succeeding the rains, when malarial fevers are prevalent.

2. The lines are good and well built, with broad roads separating the huts; each hut is about 10 feet square. Ventilation is confined to such circulation of air as can take place through the doors. There is a small bazaar near the lines; but it is only a few minutes' walk from the lines to the general bazaar. There are no villages near the lines. The lines being situated at the lowest end of the camp, drainage is not so perfect as in other parts, but the rain does not collect in the lines. A small temporary tank is formed near the lines in the rainy season; it is certainly desirable that this should no longer be the case. There are no other tanks near. Trench latrines are used, situated a short distance from the lines.

3. The fact that the whole supply of drinking water for Nusseerabad cantonment is obtained from only two sources, one of which is at a considerable distance, is a sufficient indication of the imperfections of the water-supply, at any rate as to quantity; its quality is good.

4. Good and abundant. The sepoy on an average gets about annas 11 per mensem as grain compensation.

5. The health of the men does not seem to have been affected by their duties. There is a gymnasium at Nusseerabad at which many attended.

6. From Nusseerabad to Mhow. The left wing arrived at Mhow on the 24th December 1875; the right wing is at the present date still on the march. Very little of interest occurred on the march. The cases were chiefly ague and foot-soreness, which occurred chiefly among the recruits. A severe hail-storm was experienced one day, which completely wetted the tents. No bad result followed, chiefly, I am inclined to think, owing to the issue of some hay to each tent for the men to lie upon. 2 cases of pneumonia occurred, but were brought into Mhow convalescent.

7. The hospital is a large building, on the Bengal standard plan, situated in an isolated position some distance from the lines; it is surrounded by a compound wall, within which are the various offices and quarters for the hospital staff. The ventilation is by numerous doors as well as openings in the roof, and very free when these openings are not closed. There was no over-crowding. Accommodation is ample—two large wards and three small ones, besides office and dispensary. The contents of the latrines are twice a day carried away in a cart kept at hospital specially for the purpose. The hospital water-supply is from Diggee and from a well in the hospital compound.

8. Total treated 675, died in hospital 1, invalided 27, discharged by court-martial 2, discharged at their own request 6, and dismissed 1. Principal causes of admissions were malarial fevers 247, injuries 70, rheumatic affections 56, skin diseases 49, diseases of the liver 4, diarrhoea 25, and dysentery 8. Only 1 case of death occurred in hospital during the year under review, the cause of death being in this case returned as anæmia. 3 men are reported to have died while on furlough; in only 1 case (small-pox) is the cause of death known.

9. 1 Mussulman died in hospital, and 2 Hindus and 1 Mussulman while absent on furlough.

10. There is an increase of malarious fevers after the cessation of the rains.

11. Epidemics.—None.

12. Vaccination and re-vaccination have been carried on by the district vaccinator, though with a considerable break in the rains, the alleged cause being that the parts inoculated are much irritated by the insects at this period. This does not appear to me to be a satisfactory reason for omitting the operation.

13. On the whole good, though some of the last batch of recruits are rather below the average, and nearly all the recruits suffered much from fever during the months of September and October.

14. There has been a decrease of 293 in the number of admissions as compared with 1874. The greatest decrease (216) occurs under the head of malarial fevers. In all other classes of disease, with the exception of "local injuries", the decrease is more or less marked; in this class there is an increase of 8, which is due to the number of cases of foot-soreness which occurred on the march. The year may thus be said to have been healthy.

15. With regard to the trench latrine system as carried out at Nusseerabad, it is, I think, open to objection, more especially during the rains. My reasons for this opinion are, the limited extent of ground, the situation being in a slight hollow and in close proximity to the temporary tank mentioned in the earlier part of this report. I may state that, though not a recognised source of water-supply, I believe the water of this tank is used for drinking purposes. As a system generally in use, that of trench latrines appears to be open to objection from the difficulty of getting the sepoys to use the trench: this was prominently brought to notice when the headquarters of this regiment arrived in Mhow, and found the huts they were to occupy in many cases apparently but recently used for latrine purposes. As the regiment is now in Mhow, I may mention that the huts at this station are but a poor substitute for those at Nusseerabad. They are lower, closer together, not so well built, and are not at all raised from the ground, and I think it is exceedingly doubtful if the roofs would prove waterproof in the rains. The hospital is also inferior, and even at the present season it is often found close at the time of the evening visit, though the opening in the roof and some of the doors are always kept open. Referring to an observation, made under the head of marches, about the issue of grass on an occasion of wet, I will take the liberty of stating that in Native regimental hospitals on the march I am of opinion that an issue of grass or straw for the sick to lie upon, would be conducive to their more rapid recovery. Patients suffering from fevers, lung diseases, and bowel complaints are likely to be much longer under treatment when compelled to lie on the ground only protected by the scanty bedding of the sepoy, which seldom consists of more than a small carpet, a sheet and a quilt, the last being used as a cover.

16. The medical pupil is taught the application of bandages and dressing, dispensing, preparation of hospital forms, and the value of physical examination of patients at the bed-side.

Observations made at the Hospital of H. M.'s 3rd Regiment Native Light Infantry, at Nusseerabad, on the Mean Level of the Sub-soil Water.

Locality or Designation of Well.	Date and Hour of Measurement.		Distance of Sub-soil Water below Surface of Ground.	Rainfall from Date of last Measurement.	
			Feet in.	In.	cts.
Well in hospital compound.	15th January 1875, at 5 A.M.	...	...	...	...
	15th February do.	...	...	...	...
	15th March do.	...	24 0	...	...
	15th April do.	...	25 0	...	...
	15th May do.	...	28 0	...	...
	15th June do.	...	24 4	3	5
	15th July do.	...	21 2	3	89
	15th August do.	...	15 10	7	10
	15th September do.	...	16 10	2	33
	15th October do.	...	5 3	8	85
	15th November do.	...	13 0	...	...
	15th December do.	...	...	...	...

REMARKS BY DEPUTY SURGEON-GENERAL D. WYLLIE, M.D.

The Nusseerabad lines are better than average, locality good, with fair drainage; cubage of huts fully 800 feet, with tolerable ventilation; water, very defective wells, with rare exceptions saline, drinking supply chiefly brought on camels from a distance of 3 miles; food abundant, duties moderate, trench latrines throughout. Health was very satisfactory. Hospital was occupied by men of the right wing at the date of inspection, November 29th. It has ample, well-ventilated accommodation on the Bengal standard plan, and is complete in out-offices. Vaccination and re-vaccination were carried on by the station vaccinator.

SIND DIVISION.

Average strength present during the year	...	...	2,837.5
Do. daily sick per cent. to the average strength	...	...	3.7
Ratio of mortality per cent. to the average strength	...	...	1.1

H. M.'s 29th or 2nd Belooch Regiment N. I.

KURRACHEE.—In medical charge of Surgeon J. A. HOWELL; Strength, 627.8

1. The regiment has been stationed at Kurrachee during the year. A detachment of 151 rank and file arrived from Hyderabad on being relieved by the 1st Belooch Regiment.

2. The regiment occupies the same lines as the 1st Beloochees did when stationed here last year: no alterations have been made; they are fairly good. The ventilation is good; a small bazaar near the lines; surface drainage. No tanks near the lines. Sweepers are employed to remove the excreta daily in carts, and it is buried a couple of miles beyond the parade-ground. The water-supply is brought by bheesties from the Commissariat well; it is very brackish. No analysis has been made.

Food. 3. Food is abundant, good, and comparatively cheap.

Duties. 4. The duties have not been prejudicial to the health of the men. There is a gymnasium, where the men wrestle and perform feats of strength.

5. There are 4 lock-up rooms; they are airy and commodious.

6. The hospital is same as that occupied by the 1st Belooch Regiment last year; it is well situated and very commodious, having 2 large wards. Ventilation very good. It has not been over-crowded; accommodation ample. A dead-house and store-room are required. Dry-earth system adopted, and the excreta removed daily. 2 bheesties bring water from the Commissariat well close by.

7. 538 cases were admitted during the year, and there were 4 deaths. Ague, ulcers, chest and bowel affections were the principal diseases treated. Ague caused the largest number of admissions. There were 311 cases, all of a mild form, and readily yielding to quinine and other antiperiodics. No case of remittent fever. Malarious fever most prevalent from August to January; the largest number (54) in October, the smallest (4) in April. The cold weather no doubt acts as an exciting cause in generating the disease, which is latent in the system. Ulcers and contusions.—Under this heading there were 53 admissions; the latter invariably result from shoe-bites, and these from neglect or in unhealthy constitutions give rise to troublesome sores. Perfect rest, with soothing or stimulating applications according to the condition of the ulcer, was the treatment adopted. In slight cases the men had to perform their duties under the Adjutant without gaiters and boots; this proved beneficial in checking malingering. Rheumatism.—22 admissions: most of the cases were of the subacute form, and yielded rapidly to the alkaline plan of treatment. Chest-affections, 16 and 4 deaths; they chiefly occurred in the cold season. The 4 deaths were—1 from chronic bronchitis, 2 from pneumonia, and the fourth from pleurisy terminating in effusion. This last occurred in a recruit. The deceased was subject to ague and consequently very anæmic; he was admitted on the 1st of October with symptoms of pleurisy of the left side. A blister was applied to the chest, and diaphoretics ordered, which caused relief; in a few days I detected slight effusion, which rapidly extended, filling in completely the left side of the chest and causing great distress. The symptoms became so urgent that, after consultation, I performed "paracentesis", removing 8 pints of serous fluid. The patient improved slightly, but in a few days he gradually commenced sinking, and died suddenly on the seventh day after the operation. There were 18 admissions from affections of the bowels, 5 of them cases of dysentery. In two instances the disease was very extensive, but yielded to large doses of ipecacuanha. Venereal affections caused 28 admissions, 16 of them being syphilis (primary and secondary); in most of the cases the men contracted the disease from unregistered women. 2 men were invalided by a special committee in May, and 20 at the annual board in November, chiefly for debility.

- Principal Causes of Sickness. 8. Malaria and exposure to cold were the chief causes of sickness.
- Principal Cause of Mortality. 9. Chest-affections was the only cause of mortality this year. The 4 deaths were all in Mahomedans.
- Influence of Rainfall. 10. The rainfall was 9 inches and 22 cents; it did not exert any particular influence.
- Epidemic. 11. No epidemic. There were 2 cases reported as cholera, which terminated fatally at Ghizri.
12. Vaccination was regularly practised; all recruits on joining are vaccinated. 32 cases successful and 66 re-vaccinated.
- General Health and Physique of the Men. 13. The men are in excellent health and of physique.
14. On comparing this with last year the health of the regiment has evidently improved: the strength for both years being about the same, there were 799 admissions last year to 538 for 1875. This diminution in the number of admissions is due to the reduction of cases of malarious fever, there being 563 on the register for 1874, while this year there are only 311. It is to be hoped by next year there will be a further reduction from this cause, as by that time the regiment will have had the advantage of being two years in a very healthy station.

REMARKS BY DEPUTY SURGEON-GENERAL J. R. MILLER, M. D.

The lines are the old European dépôt barracks, fully reported on when occupied by the 27th Regiment in 1874; no alterations have been made in these. Latrines are on the standard plan, are fairly clean; night-soil removed daily in tank carts, and buried a couple of miles off. Water as formerly reported, supplied from the Commissariat well, is brackish. A former analysis showed it to be far from pure. The municipality have decided to bring water in from the Mullir River, some 15 miles distant, and Government have agreed to lend the money necessary for the purpose; so that in a couple of years hence pure water will be obtained. Drainage is satisfactory, the lines being on slight incline. The hospital is large and commodious; ventilation good. It requires, however, to be supplied with a dead-house and accommodation for 2nd class establishment: this has been formerly reported. Conservancy of latrine improved.

The health of the regiment has unquestionably benefited by its change to Kurrachee; it suffered severely when at Hyderabad in 1874. The physique of the men is good. Their duties are not severe, and they are exercised in gymnastics and athletic sports, in which they take considerable interest.

H. M.'s 27th or 1st Belooch Regiment N. L. I.

HYDERABAD.—In medical charge of Surgeon S. B. HALLIDAY; Strength, 679.

1. The regiment was stationed in Hyderabad till the 2nd December, when the head-quarters, 426 strong, marched out for exercise through the surrounding country, and returned on the 23rd December 1875. 14 men were on escort duty with the Commissioner in Sind till the 17th of April, and small parties of 3 or 4 were detailed for various duties, as recruiting, the escort of prisoners, treasure, ammunition, &c. When the head-quarters marched out, a detachment of 289 was left in Hyderabad.

2. The cantonment is situated on a large plateau of the low calcareous range of hills called the Gungah Hills, with an elevation of about 31 feet above the surrounding country and 32 feet above average high-water mark of the River Indus. The town, containing 34,000 inhabitants, is about half a mile to the east, and on a plateau about 25 feet higher than the cantonment. The surface consists of broken-down calcareous rock.

3. The water is derived from the Indus, distant about 3 miles, either by branches, canals, or percolation; it commences to rise in April from the melting Himalyan snow aided by rain, and gradually increases until it obtains an average height of $16\frac{1}{2}$ feet above average low-water mark, being then about 1 foot only below the surface of the country adjacent to the eastern bank; it fills all the tanks, canals, &c., and saturates the sub-soil from which the wells obtain their supply, and it gradually falls about August. Analysis of Indus water:—*Colour*, turbid; after 24 hours, clear. *Taste*, slightly earthy. *Smell*, none. *Re-action*, slightly acid. *Organic matter*, none. *Lime*, turbidity; after boiling, clear. *Chlorine*, qualitative, slight turbidity; quantitative, 4 grains salt per gallon. *Sulphuric acid*, slight precipitate. *Soap test*, 9 grain per gallon, $4\frac{1}{2}$ grains after boiling—carbonate of lime. *Solids per gallon*, 15 grains; n, blackening. *Sediment*, 28 grains per gallon in 24 hours. *Remarks*.—Is an excellent water

There are surface drains which carry off the rainfall fairly if it is not very heavy and continuous, but this year 6·19 inches fell in 24 hours (from noon on the 18th July till the middle of the following day), and as the drains were unequal to carry off this unusual quantity, water collected to the depth of a foot, and remained for a few days in the low-lying portions of the cantonment. There are no drains for sewage, as this is carted to a distance.

4. The cantonment being elevated, and the surrounding country flat, there is generally a strong sea-breeze from the south-west from April to October, which during the day is rendered very hot and dry in its passage over the barren sandy country lying between the station and the sea; but at night by parting with its moisture it reaches the cantonment as a cool refreshing breeze which renders the nights bearable, there being only a few during which this breeze fails. The cantonment being situated on a rock reflects and radiates the sun's heat. The wind during the other months generally blows from the north-east, and is harsh, cold, and dry.

5. The lines have a S.W. front, and are disposed in the form of a right-angled parallelogram, the longer sides, 257 yards, facing respectively N.E and S.W.; and the shorter, 152 yards, N.W. and S.E., and consist of 48 detached, flat-roofed, mud buildings with 11 parallel streets which run the entire length from N.E. to S.W., each 9 yards wide, except the 5th from the S.E., which is 23 yards wide, and 3 parallel streets which run at right angles to the former the entire length from N.W. to S.E. The first and second of these, counting from the S.W., are 20 yards wide, and the third 11 yards. The first, second and third rows from the front contain 36 pendalls, 12 in each row, and the fourth or rear row consists of 12 Native officers' huts; all these are arranged in parallel rows. All the buildings are on the surface, and not raised on plinths. There is a foot-path, 6 inches high and 4 feet wide, all round each pendall, but not round the Native officers' quarters. The lines are in a good state of repair. Each pendall is ventilated by 3 fixed cowls on the roof facing S.W., and by 8 doors on each side, and 2 at each end; each Native officer's block is ventilated by 1 cowl, similar to those on the pendalls, and is in common between the 2 Native officers' quarters into which each block is divided. There are also two doors to each Native officer's quarters. The sanitary arrangements are carefully attended to by the bazaar master, who has under him a staff of sweepers with carts. There is no drainage, the soiled water being distributed to trees planted in the lines, and any superfluous amount is carted away. The lines being on elevated ground are not flooded in wet weather, but the pendalls are flooded, as there is no escape for the water from the floors, they not being built on plinths.

6. There are 4 permanent latrines—2 for males, each containing 28 seats, and 2 for females, each containing 12 seats. 1 male and 1 female latrine are situated about 54 yards from each rear corner of the lines. They are on the standard plan, and are very defective, as the pans and pan compartments are too short, and the urine frequently falls on the floors in front. The defects and the alterations required have been reported to the proper authority.

7. The water is obtained from 3 wells close to the foot of the plateau on which the cantonment is situated; these obtain their supply from the Indus, and rise and fall with that river. Analysis of Belooch well-water:—*Colour*, clear. *Taste*, slightly earthy. *Smell*, none. *Re-action*, very slightly acid. *Organic matter*, none. *Lime*, slightly precipitate; after boiling, clear. *Chlorine*, qualitative, turbidity; quantitative, 10 grains salt per gallon. *Sulphuric acid*, slight precipitate. *Soap test*, $3\frac{1}{2}$ grains per gallon—carbonate of lime. *Solids per gallon*, 39 grains; no blackening. *Sediment*, none. *Remarks*.—This is an excellent water.

Food. 8. Quality good, fairly abundant, and cheap.

Clothing. 9. The clothing is altered to suit the season of year and is sufficient and suitable.

10. Consisted of the usual parades, guards, and escort duty, which had no special effect on health. Wrestling, parallel and horizontal bars ; of the first the natives are particularly fond. There was a public exhibition of all the exercises every Thursday afternoon, in which all comers were allowed to compete with the sepoys : a large number of competitors for wrestling always entered the arena, the victors receiving turbans as prizes from Colonel Hogg. About 1,000 spectators weekly assembled to witness the sports.

There were 16 marches, the average distance of each about 9 miles, and the pace about $3\frac{1}{2}$ miles an hour. There were 6 halts, during which the men were manœuvred. Their health during the march was good, as the weather was dry and moderately cold, though many suffered from severe shoe and gaiter-bites, and 15 from ague.

11. Situated 100 feet to the rear of and parallel to the lines is a long, flat-roofed, mud building on a mud plinth of only 6 inches high and surrounded with a verandah 10 feet wide and 14 feet high on three sides, and contains 3 wards, 27 feet wide, 14 feet high, and 55, 107, and 53 feet long respectively. At the east end are the hospital assistant's quarters into which the verandah space is thrown so as to give a width of 54 feet by 24 feet, and the same height as the wards. A portion of the verandah, 25 feet long, at the rear of the hospital, and adjoining the hospital assistant's quarters, is built up for a dispensary. There is a good dead-house. The 2nd class hospital servants' quarters are not well constructed, but are in a fair state of repair. Ventilation is procured by doors on the front and rear and in the end, and by 16 cowls in the roof similar to those on the pendalls. No over-crowding. The accommodation is generally sufficient, but the hospital is not sufficiently elevated, and is too close to the lines : a new hospital on a more elevated and better site is shortly to be built. The hospital latrine is roofless, built of mud, and contains 18 receptacles without partitions between them ; the chunam breaks up rapidly, becomes saturated with the discharges, and smells offensively. The dry-earth system is carried out, the urine being received into an earthen vessel which is placed in front of each compartment ; the sewage is removed in a tank cart, and buried at a distance. The latrine is most objectionably constructed, and a new building with iron pans is required.

12. The chief diseases were—malarious fever 275 ; injuries, including contusion and shoe-bites, 103 ; lung-affections 52 ; digestive system 54 ; general diseases, B, 14 ; cutaneous system 44 ; conjunctivitis 25 ; syphilis, secondary, 20, of which 9 cases were contracted in Hyderabad ; syphilis, primary, 17 ; gonorrhœa 10. The fever was all of the intermittent description, and generally easily cured by quinine ; only 2 deaths occurred. 38 men were invalided, 26 being pensioned, and 12 discharged with gratuity. Malaria when the inundated ground is drying up, and cold during winter. Shoe and gaiter-bites also caused a large number of admissions ; these latter (gaiters) not only produce abrasions like the shoes, but rub any pimple, boil, or eruption which may form on the legs, to which natives are very subject, into irritable sores.

13. 1 from heart-disease and 1 from phthisis ; both Mussulmans.

14. I strongly recommend, for the efficiency of the regiment and on the score of economy, that the courtesans should be placed under supervision.

15. Cinchonidine was administered in ague, and seemed to be from $\frac{1}{2}$ to $\frac{1}{3}$ the strength of quinine, and in severe and obstinate cases frequently failed. The sub-cutaneous injection of quinine was practised in ague with favourable results, the irritation of the injection generally disappearing in a few days, and only in 3 cases produced troublesome abscesses.

16. The average temperature of the hot season is 95° , and that of the cold 60° ; the highest temperature of the hottest day frequently rises to 110° , occasionally even higher. The lowest of the night in winter is a few degrees below freezing point. The total rainfall during the year was 7 inches and 91 cents.

17. 21 recruits joined during the year, of which 20 were Mussulmans and 1 Hindu. The regiment is composed of 546 Mussulmans, 131 Hindus, and 2 Jews.

REMARKS BY DEPUTY SURGEON-GENERAL J. R. MILLER, M.D.

Duties are not severe. Athletic exercises are encouraged. This greatly conduces to the health and well-being of the men.

Lines have been previously described. There is no change. Position is satisfactory, and ventilation good. Accommodation for sepoys sufficient, but is far too limited for the Native officers. Drainage is surface only, and the lines being placed on a slight incline, water does not remain. But there is one great defect : the huts are level with the ground, and in

Malarious fever in its various forms gave the greatest number of admissions, 362 in number, or 74 less than last year :—

January...	...	...	...	...	28	July	...	...	...	...	...	3
February	...	...	...	...	27	August	...	...	...	...	...	4
March ..	...	...	...	...	41	September	...	...	...	...	...	13
April ...	...	...	...	...	23	October ...	...	...	...	...	...	63
May ...	...	...	...	...	17	November	...	...	...	...	...	93
June ...	...	...	...	...	5	December	...	...	...	...	...	45

The fever this year has been exceptionally bad, and the type appears to be of a more debilitating nature than usual, and it has been remarked that many persons who had not suffered from fever for years were attacked this year ; this applies particularly to Europeans. Pneumonia and dysentery, met with here, does not call for any further description beyond what was given in last report ; the former is very fatal, the latter mild. Mortality.—6 deaths occurred in hospital, 2 on out-post duty, and 1 on leave. *In hospital* they were—ague 1, pneumonia 3, ascites 1, debility 1. *Out of hospital*, pneumonia 1, ague 1, cause unknown 1. 17 men were invalided during the year—10 above 15 years' service, 3 under, and 4 under 5 years—from the following diseases :—malarious cachexia 4, enlarged spleen 1, lameness 1, mental incapacity 1, old and worn-out 5, general debility 2, chronic rheumatism 2, syphilis—secondary—1. 18 men were granted sick certificate for periods varying from 6 months to 14 days ; 4 men out of this number were permanently disposed of at the general invaliding committee. The mortality, according to race, was—deaths in hospital, 5 Mussulmans and 1 Hindu ; out of hospital, 1 Mussulman and 2 Hindus.

8. The following table shows the temperature and rainfall during the year :—

Months.	Common Thermo- meter in Verandah.			Rain.		Remarks.
	Maximum.	Minimum.	Mean.			
				In. cts.		
January	67	52	54½	...		Dust-storm, water frozen 5 times, cloudy, and few drops of rain fell.
February	69	52	60½	0 83		Cloudy weather, and rain fell 6 times in the month.
March	101	48	74½	...		Cloudy weather and hot winds.
April	106	70	88	...		Cloudy, dust-storms, hot wind, and few drops of rain fell.
May	106	78	92	0 1		Cloudy and dust-storms, slight rain fell and hot winds.
June	106	81	93½	...		Hot wind and cloudy.
July	102	84	93	1 37		Cloudy, rain fell, dust-storm. Indus water arrived in camp on the 10th.
August	99	83	91	...		Cloudy. Flood water arrived on the 21st round the camp.
September	98	80	89	1 12		Cloudy, duststorms, rain fell.
October	90	64	77	...		Weather fair.
November	79	60	69½	0 74		Cloudy weather and rain fell.
December	68	46	57	0 12		Cloudy, and slight rain fell.
Total...				4 19		

- Vaccination.

General Health and Physique.
9. There were 12 vaccinations.

10. Could not by any possibility be much worse.
11. No opportunity has offered for any special line of treatment ; nothing save the usual uninteresting cases commonly met in Native regimental hospitals presented themselves.

Treatment of Diseases when special.
12. I would call attention to my remark on the general health and physique of the regiment, also to my remarks on the same subject, (*vide* report for 1874,) from which will be seen the necessity of introducing some measure, such as I recommend in this report. The system of invaliding, as it is at

Special Observations.

present carried on, is most defective and objectionable; the same may with equal truth be said of the pension regulations; and I may remark that the recruiting of the regiments from the Deccan has proved to be a total failure, the recruits deserting in numbers as many as 3 on one day. 2 men were discharged: 1 by court-martial the other for being absent without leave.

REMARKS BY DEPUTY SURGEON-GENERAL J. R. MILLER, M.D.

The new lines were completed during the year. They are not, however, "everything that could be desired", inasmuch as they are wanting in separate accommodation for the men's horse accoutrements; and the ventilation would have been more scientific and less annoying to the men had it been arranged to traverse from side to side under the roof, in place of from each door to the opening above. Conservancy most objectionable. There are 6 open enclosures down the centre of each troop; twice a day these are cleaned out, but the soil is, of course, saturated with filth. A late analysis of the water shows it to be charged with earthy salts and otherwise impure; filters would greatly improve it. The duties have been light, and have not exercised any prejudicial effects on the health of the men. The Surgeon in charge recommends the introduction of a gymnasium under proper supervision; and I quite agree with him that regular daily exercise should become a recognised part of the soldier's duties. In addition to the defects in the hospital I formerly reported, I observed at my late inspection that the floor, which is level with the ground, and the lower portion of the walls were damp and crumbling, owing to the quantity of salt in the soil. An extra ward has been proposed to be added to provide the accommodation required, but it would leave untouched the other defects just mentioned. Hospital conservancy improved. Disinfectants much less sparingly used, and the dry-earth system making progress. The latrine, however, is much too small, and on a wrong principle. Water-supply is the same as for the lines. Analysis has shown it to be far from good.

Thermometer readings are not of any value, as they are taken from an instrument hanging up in the hospital verandah, from which heat is, of course, communicated to the instrument.

With regard to the general health and physique of the men, the surgeon in charge says:—"These could not by any possibility be much worse." This, however, must be taken "*cum grano salis*". It is nevertheless indisputable that the physique is by no means satisfactory. It is better, however, than that of the other two regiments, but very inferior to what is observed in Native cavalry regiments in the Bombay Presidency. The general health has been bad, more so than for the previous year.

H. M.'s 2nd Regiment Sind Horse.

JACOBABAD.—In medical charge of Surgeon M. L. BARTHOLOMEUSZ, M.B.; Strength, 287.

Location and Movements of Corps.

1. The regiment is permanently located at Jacobabad, and furnishes troops for duty at the different out-posts in the frontier of Upper Sind.

Climate.

2. In my last year's report all the chief features of the district, which impart to it its characteristic climate, was dilated upon. The abundant water now found in Sind and its excellent alluvial soil afford special facilities for the cultivation, not only of grain and such like commodities, but also of useful timber trees, which might in time be found to be a new source of revenue to Government. The cultivation of an extensive tract of forest trees around Jacobabad would, in a great measure, temper the severity of the excessive heat during the summer months, and at the same time render this highly malarious atmosphere more congenial for human respiration.

Lines.

3. The regimental lines require to be better ventilated, chiefly in consequence of there being no separate accommodation for the occupant's saddlery, accoutrements, &c. The defective ventilation has been reported to the Commanding Officer, and the necessary improvements recommended. The lines are always kept clean and properly looked after. There has been no change in the conservancy of the regimental latrines, except that earthen pans have been provided as recep-

tacles for the excreta in each. The dry-earth system has not succeeded here, as the men cannot be compelled to use the earth on every occasion they visit the latrine, and the sweepers are insufficient for the task : this being the case, I repeat the suggestion, made last year, that the existing six small latrines in proximity to the lines be done away with, and two large ones be built in lieu of them at some distance from the lines. If this suggestion is carried out, and a sweeper or more be permanently placed on duty at the latrines, with instructions for their guidance as to the disposal of the dry earth and the punctual removal of the discharges morning and evening, it would be a simple matter to carry out this system of conservancy in a satisfactory manner.

Conservancy.

4. The water for drinking purposes is derived from the best well in camp. I have

Water.

analysed the water from this source, and found it to contain an excess of dissolved organic matter, as would be expected in all alluvial soils. Having analysed the potable waters of Jacobabad from different sources, I may be justified in reviewing the quality of the water-supply in camp ; it may be pronounced impure on account of the excess of oxidizable organic matter as detected by the action of permanganate of potash in presence of sulphuric acid. The well which supplies this regiment contained no other impurities at the period of examination, so far as I was able to find out ; it deteriorates little, if at all, during the dry season, as its source of supply is a tank in close proximity, which never dries up, and from which the water enters the well by percolation through the soil. The water from other sources was found to contain, in addition to an excess of oxidizable organic matter, a large amount of chloride of sodium, and the salts of magnesia and lime ; indeed, during the beginning of the hot weather, when the chief source of supply through the canals is *nil* and the water appears in a concentrated form, the saline taste alone renders it quite unpalatable. With regard to suggestions for improving the water-supply for drinking purposes, I beg to recommend that all the wells in camp be thoroughly cleaned out, at least once a year ; and the large tank, which acts as a reservoir of water during the dry season, be cleared of the multitude of fish that accumulate in it, and steps be taken for preventing its pollution by the inhabitants. While on this subject it would not be out of place to suggest the supply of filters to the different out-posts where the drinking water is highly charged with impurities, both organic and mineral, and very unpalatable, owing to the large amount of chloride of sodium in solution. I append a table of analysis showing the chief elements of impurity in the potable waters of Jacobabad, and regret that a deficiency of apparatus prevented me from rendering the analysis more complete. The exceedingly small number of cases of dysentery and diarrhoea and diseases of a typhoid character, which are recorded in the annual return of the regiment for the year under review, affords sufficient proof of the absence of any sewage contamination in the drinking water of camp.

5. Food is plentiful and of good quality, and comparatively cheap : the recruit does not

Food.

seem to thrive upon it, as the many deductions from his pay leave a very inadequate balance to meet the demands of his growing frame.

6. With the exception of the exercise which drills and parades involve, there is no pro-

Exercise, Amusement, and Occupation.

vision made with the view of developing the muscular system of the recruits. There is no gymnasium, and no attempt at athletic exercise. It is my opinion that the regiment should be provided with a gymnasium, and that all the recruits should be made to go through a course of gymnastic training, under the immediate superintendence of an European officer, in lieu of some of their drills.

7. The head-quarters of the regiment, strength 202, marched (*en route* to Kashmore),

Marches.

where it halted, awaiting the arrival of His Excellency the Commander-in-Chief until the 24th January ; having supplied one troop as a guard of honour and escort to His Excellency, the head-quarters of the regiment marched back to camp. Total number of miles marched 166. Number of days absent from camp of Jacobabad, 17. The weather was extremely cold during the hours of marching. There was frost on the ground, and on one occasion the uncommon phenomenon of an icicle on a sowar's beard sufficiently indicated the degree of temperature. The men were in excellent health throughout the march, and seemed to enjoy the change of air exceedingly. It is interesting to note that, although the cold was very great, no cases of pulmonary affection occurred. Of the 5 cases admitted into the hospital tent, 1 was from fever, and the rest caused by accident. The trivial amount of sickness during the march points to the benefit derived from marching out of the unhealthy area. It is the only opportunity the head-quarters of the regiment have of moving out of Jacobabad ; and I cannot let this occasion pass without bringing into prominent notice the beneficial results, as far as the health of

troops is concerned, that would follow were annual marches more regularly carried out ; indeed, I think that it should be a standing order that regiments stationed in Jacobabad should be compelled to march out of camp every year.

8. The building is seldom full during 6 months in the year ; but when fever cases prevail to a great extent, as it does for about 4 months, and these are supplemented by chest-affections and ulcers peculiar to this locality, the hospital accommodation is found to be very inadequate, and a hut has to be utilized as a temporary ward. The number of cases admitted into hospital with ulcers is considerable. As most of these occur in the lower extremity, the absence of a cook-room is not only a great source of inconvenience to the patients, but also in a great measure defeats the object of treatment, by compelling them to walk to their lines for their meals. The hospital latrine has been improved by better ventilation, and the dry-earth system of conservancy is carried out here.

9. The average daily strength present at head-quarters was 287, the total number of cases treated was 343, and the actual number of individuals treated was 241. As usual malarious fever furnished the largest number of admissions : under this head there were 127 treated. The fever season began in September, arrived at its maximum in November, and gradually decreased towards December ; while in the months between March and August, (both inclusive,) only 9 admissions occurred, while in the other months there were 118. Next comes ulcers, abscesses, boils, and contusions, which in a great measure supervened upon injuries caused by horses. These accidents, which in healthy individuals would be unattended with any bad results, are in the inhabitants of this climate invariably followed by ulcers characterized by extreme feebleness of healing action. There were only 5 cases of pneumonia, of which 2 proved fatal on the third day after admission, which sufficiently indicates the severity of the disease and the rapid tendency to a fatal termination. 18 cases of venereal affections were treated, including primary and secondary syphilis and gonorrhœa. With reference to this, it is a matter of regret that, in a large military station like this, venereal affections are permitted to be propagated with impunity amongst the men, who in this climate are especially prone to disease, and in whom constitutional diseases appear in an exaggerated form. There should be a lock-hospital in the station, and the Contagious Diseases Act enforced. 1 case of diarrhœa and 4 of dysentery were treated ; one of the latter remains in hospital. This man was originally admitted for intermittent fever of a very severe type ; this was followed by dysentery, which ultimately lapsed into diarrhœa. One death occurred from phthisis in a weak and sickly patient in the month of March ; 1 from pneumonia in the case of a pay-duffedar who had recently returned from out-post duty. He stated on admission that he was suffering from fever for 4 days, and very imprudently kept in his hut without coming into hospital for treatment ; when admitted he was in a hopeless condition, and his case proved fatal on the third day. Another fatal case from pneumonia occurred in November after 2 days' illness in hospital. The total number of deaths in hospital was 3, and out of hospital 2 : in one the cause is unknown, and the other committed suicide at an out-post. The mortality this year compares very favourably with that of last year : 18 were invalided, 10 old age and debility, 4 chronic rheumatism, 2 enlargement of spleen, 1 fibrous union of fractured patella.

10. The chief cause of the unhealthiness of Jacobabad may be traced to the annual inundations around camp. This fact would be apparent to anybody who has experienced a 12 months' residence here, and has been confirmed by some of the old inhabitants, who assert that Jacobabad was more healthy at a time when inundations were unknown, although the water-supply was extremely defective. If engineering skill could prevent the rush of water, which annually deluges the country around camp, by the overflowing of the Indus, one prime cause of disease would be removed ; unless this is accomplished, the camp of Jacobabad will for ever remain a hot-bed of malaria.

Principal Causes of Mortality.

11. Pulmonary affections and the effects of malaria.

Mortality according to Race.

12. Hindu 1, Mussalmans 2.

13. The amount of rainfall during the year has been registered as 3 inches and 17 cents. This fell during the months of February, May, July, September, November, and December.

Influence of Rainfall.

14. Number recruited in camp 19, and elsewhere 24. The type of recruits who have been passed and sent up from the Deccan is very inferior—narrow-chested, ill-fed lads, who are utterly unfit and unsuited for this climate. Their general physique is much below the average, and they spend a large portion of their time in hospital. I recommend that this system of passing recruits in Deccan be abolished.

15. The sulphate of cinchonidine was largely used in the treatment of malarious fever, and with considerable success. Very severe cases of intermittent fever, accompanied in some with delirium, were equally successful. One case failed, but in this it is only fair to state that a larger dose than grs. *iv ter die* might have been successful; but, as I was endeavouring to discover the comparative value of this alkaloid with the sulphate of quinine, the latter was substituted in similar doses, and with success: this, however, was a complicated case of malarious fever, as dysentery supervened soon after. The treatment of ulcers is very unsatisfactory, and the only successful results obtained are from change of air into a less malarious area. Pulmonary complaints require free administration of stimulants from an early stage of the disease. In recapitulating the special features of this report I beg to bring the following into prominent notice:—1st, The necessity of a complete change from this malarious area periodically, say for a period of 12 months every 3 years; 2nd, the salutary effects to be derived from marching out every year; 3rd, the abolition of the existing system of recruiting in the Deccan, which burdens the regiment with a set of incapable men; 4th, the adoption of a system of gymnastic training amongst the recruits in lieu of some of their drills; and, 5th, improving the hospital accommodation and the quality of the water-supply by keeping the wells in camp in good order, and supplying filters to the different out-posts.

Analyses of Well Water in the Camp and Town of Jacobabad, used by the Military and Civil Populations respectively.

		Two Wells chiefly used by the Population in Camp.				Two Wells chiefly used by the Civil Population in Town and Bazaar.				N. B.—Two last samples forwarded by the Civil Surgeon.
		No. 1 Well, or "Bari Well".		No. 2 Well, or "Jast Well".		No. 1 Civil Well situated in centre of town.		No. 2 Well situated near Mouktyarkhan's house.		
		Grammes per Litre.	Grains per Gallon.	Grammes per Litre.	Grains per Gallon.	Grammes per Litre.	Grains per Gallon.	Grammes per Litre.	Grains per Gallon.	
<i>Solids—</i>										
<i>a</i> Total ...	...	·286	20·020	·432	30·240	·642	44·940	1·296	90·720
<i>b</i> Volatile ...	...	·078	5·460	·174	12·180	·098	6·860	·224	15·680
<i>c</i> Fixed ...	...	·208	14·560	·258	18·06	·544	38·080	1·072	75·040
Ammonia (free)		...	...	...	Nil.	...	...	...	...
Chlorine ...		·0269	1·884	·0390	2·728	·0731	5·108	·1874	13·094	
Magnesia...		...	3·500	...	4·200	...	5·600	...	8·40	
Lime ...		...	2·744	...	2·108	...	1·568	...	6·272
Oxygen required to oxidise at 140° F. in presence of acid.		Millegrammes per Litre. 2·7	·1890	Millegrammes per Litre. 2·2	·1540	Millegrammes per Litre. 2·4	·1680	Millegrammes per Litre. 2·64	1·848	
<i>Hardness—</i>		(Clarke's Scale.)								
<i>a</i> Total ...	...	16°·48		18°·55		20°·30			32°·55
<i>b</i> Permanent ...	...	5°·25		5°·95		6°·65			10°·50
<i>c</i> Removable ...	...	11°·20		12°·60		13°·65			22°·05

Physical Characters--							
a	Odour ...	...	None.	None.	None.	None.	
b	Taste ...	...	None.	Brackish.	Very brackish.		
c	Colour ...	...	Clear and transparent.	Clear and transparent.	Clear and transparent.		
Sediment ...			Considerable in all samples, of a brownish colour, consisting of vegetable debris. Salts of lime and magnesia which effervesced on the addition of dilute nitric acid ; and a few living organisms, as parametæa and entomastrea, detected under the microscope.				
Description of Well ...			Pucka well built of brick and mortar. Depth of well 39 feet. Water 25 feet. Tank and nullah in close proximity.	Pucka well built of brick and mortar. Depth of well 43 feet. Water 23 feet. Tank and nullah in close proximity.	Pucka well built of brick and mud. Depth of well 29 feet. Water 15 feet. No tank or nullah in immediate neighbourhood.	Pucka well built of brick and mud. Depth of well 30 feet. Water 18 feet. No tank or nullah in immediate neighbourhood.	

REPORT ON SIND SORE FOR THE YEAR 1875.

The Sind ulcer may have either an idiopathic or traumatic origin : in the first instance as a small vesicle or papule, which suppurates and gives rise to an unhealthy, purulent discharge, and gradually extending by undermining the tissues in the immediate neighbourhood, and forming sinuses under the integument. The ulcer having a traumatic origin generally supervenes upon ordinary injuries, whether it be a simple contusion resulting from the kick of a horse or the apparently trivial abrasion of the skin which follows the scratching of a mosquito sting. The ulcer which results (generally situated in one of the extremities), is characterized in both instances by defective action and low vitality of the part affected, and exhibits the extreme feebleness of the *vis medicatrix naturæ* of the whole system. In some instances the ulcer is filled up with hard, warty granulations which appear above the surface of the sore, and which bleed profusely on section. Pain is not a prominent symptom. The ulcer takes a long time in healing, and when it does so it leaves a well-marked cicatrix, highly pigmented and suspiciously resembling the scar which results from a syphilitic ulcer. I have not succeeded in obtaining any particular results by microscopical examination of the diseased structure, but the blood of the patient contained an excess of colourless corpuscles. With reference to the etiology of the disease, I am inclined to the opinion that the ulcer is merely a visible indication of the peculiar endemic constitution of the residents of Upper Sind, who are exposed to the depressing effects of a high temperature and the peculiar cachexy induced by malaria. This form of ulcer would be better designated the *malarious cachectic ulcer* rather than the local name it now possesses, and which attributes to it no pathological signification.

REMARKS BY DEPUTY SURGEON-GENERAL J. R. MILLER, M.D.

The lines lately built are good and substantial. Accommodation provides 873 cubic feet, and a superficial space of 68·4 feet per room for every 2 men. The ventilation is similar to that in the 1st Sind Horse lines, and would be greatly improved if the recommendation suggested were adopted in both. Separate space is also required for saddles and horse-trappings. The open latrines, objectionable as regards construction and position, should be abolished, and a couple of new ones on the standard plan should be substituted, one on each flank of the regiment. Surgeon Bartholomeusz in charge has made an analysis of the potable waters in camp; he found them all more or less impure owing to excess of oxidisable organic matter. The well supplying this regiment is the best in camp, and contains a smaller proportion of chloride of sodium and earthy salts. Sewage contamination is not apparent in it. Head-quarters—strength 202—marched to Kashmor and back. The weather was cold, but the health of the men was excellent during the whole time, showing the advisability of marching regiments about every cold season for a limited period. The faulty position of this hospital has been every year reported on; also the inadequate accommodation. In fact, it is only half a hospital, the remaining portion being allotted to the 3rd Regiment. This, however, is about to be remedied, as a new hospital has been sanctioned for the latter regiment. A dead-house and cook-room should be provided. Latrine has been improved as regards ventilation and conservancy, but it is still too small. The number of cases of venereal affords no help in estimating the increase or otherwise of this disease, as it is seldom, except when men are disabled from this cause, that they acknowledge their complaint, or apply at the hospital for relief. Vaccination is a blank. Some 4 or 5 infants are unprotected; all others, including women and children, are said to be protected either by small-pox or vaccination: such is the result of the system of non-interference. Surgeon Bartholomeusz remarks, regarding the type of recruits sent up from the Deccan, that they are very inferior, narrow-chested, ill-fed lads, entirely unfit for this climate; they spend a large portion of their time in hospital. From my observations I am quite prepared to endorse this. In his *resumé* of the history of this regiment Surgeon Bartholomeusz enumerates the special points for the improvement of the men's health, and which I have in previous reports so frequently recommended.

H. M.'s 3rd Regiment Sind Horse.

JACOBABAD.—In medical charge of Surgeon C. W. MACRURY; Strength, 356.

Location and Movement of Corps.	1. The head-quarters of the regiment remained at Jacobabad during the year. Detachments have been on duty at the different out-post stations.
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2. The cantonment of Jacobabad is the head-quarters of the Sind Frontier Force, and

Topography and Physical Geography.

is situated in latitude $28^{\circ}16'$ north, longitude $68^{\circ}28'$ east. It stands about 180 feet above the level of the sea, but is about 50 feet below the level of the bed of the Indus at Kashmor, on the right bank of that river, distant about 80 miles. The whole of the Indus Valley is an alluvial plain formed by the deposit from the river or its branches, which have swept over almost every portion of it at some time or other. As is the case in the valleys of all large rivers, the land is highest at the banks of the Indus from the accumulation of detritus brought down by the hill torrents, which settles as the velocity of the current decreases; and lowest the further the bank is receded from, the slope of the plain from the river-bank being a foot per mile in some places. Like nearly all newly-formed land, the soil consists of stiff clay and loose sand, which with little labour yields rich crops of cereals, pulses, and vegetables. It also produces fruit trees when cultivated; but, although the soil is very fertile, the fruit in general is of inferior quality. Not so, however, the esculent vegetables, which are so welcome in the cold season, when they can only be grown; among them may be mentioned potatoes, cabbages, peas, turnips, carrots, beet, and several kinds of cucumbers, &c. There are two harvests—the rubbee or spring harvest, and the khureef or autumn harvest. The rubbee crops consist chiefly of wheat, grain, barley, oil-seeds, opium, hemp, and tobacco; the khureef generally comprise rice, sugar-cane, cotton, indigo, jowaree, and bajree, which only mature and ripen in the hot season, and are grown on land artificially watered by means of wells and canals. These canals and wells are supplied by the Begári, which is fed by the Indus direct;

Water.

the water which flows through camp is exposed to many sources of impurity on its way from the river. For several miles from its mouth there are numerous pools of stagnant water with dead fish in the bed of the Begári, which are scoured by the first rush of the water; and when the surrounding country is flooded, the population take shelter on the banks of the canal with all their cattle for several months, using it not only for drinking and bathing purposes, but converting it into a sewer as well. Besides, the beds of all the nallahs and water-courses in and around camp are favourite places of resort for natural purposes when dry; later in the season, when the inundation water finds its way through breaches in the canals, the water changes from its ordinary yellow colour to a greenish or dark-brown hue. This is caused by the silt suspended in the water being intercepted by the vegetation, which retards its flow, when it takes up some vegetable colouring matter in return from the grass and jungle it traverses. Most of the wells get brackish in April and May, when the sub-soil water is at its lowest: those situated near the principal nallahs, however, keep sweet all the year round, as the immense volume of water that percolates through them washes away the salt in the surrounding ground, which appears in patches of efflorescence here and there, on which nothing will grow except useless weeds. Surface drainage is the only system practicable here; no other system is applicable to a station in a hollow as Jacobabad is, being about half way between the river and the hills, and consequently subject to floods from

Drainage.

both. A slight artificial fall could have been obtained if the bricks, of which the station is built, had been originally dug equally all round the cantonment, instead of forming three large tanks inside camp, which poison the air with their noxious exhalations, and at a certain season of the year become pestilential from putrid fish. An insanitary kind of plinth is, however, in course of formation by the accumulation of organic matter, animal and vegetable, which in a few centuries, if not washed away or disturbed by volcanic agency, may become a considerable mound like that on which the town of Shikarpur is built, the nature of which I had an opportunity of seeing last year when the foundation of the new municipal buildings of that town were being laid. The disadvantage of want of drainage is experienced after a shower of rain, when the water lodges in different parts of camp, gravitating towards the hollows, with which most of the compounds are furnished; but locomotion is attended with danger and difficulty owing to the slippery and soft nature of the ground, and for some days after rain in the hot season the place is converted into a vapour-bath. The nature and appearance of the surrounding country may be imagined when I mention that good bags of snipe and duck are made within a mile of the station, which may be said to be an island during the months of September, October, and November. The heavy floods of the last few years have given a powerful impetus to low vegetation, rank weeds covering spots that used to be void of vegetable life; the jungle all round is rapidly increasing and extending, more especially since the unusual rainfall and inundation of 1874.

3. All the co-efficients that constitute an unhealthy climate are present here, such as extremes of temperature, moisture, and low, inundated land; consequently it is a veritable hot-bed of malaria.

Climate.

4. The lines are of modern construction, but the plan on which they are built is susceptible of improvement: for instance, there is no provision made for cross-ventilation. The available space per man, including the verandah, is 1,362 cubic and 126 superficial feet; exclusive of the verandah, 876 cubic

Lines.

feet and a superficial area of 72 feet. There being no regimental bazaar, the men obtain their supplies from the brigade bazaar. Drainage is carried out by means of surface gutters; there are neither tanks nor villages in the neighbourhood. There are 3 latrines, each divided into 12 compartments, and provided with iron pans and chunam gutters and pits. The contents are removed twice a day, and deposited beyond camp limits, earth and lime being used as disinfectants.

Conservancy and Sanitary Arrangements.

The lines are kept clean, and sanitary arrangements are attended to as well as can be.

5. The water-supply is plentiful, the source being wells, which are fed by percolation.

Water.

On being analysed by Surgeon Bartholomeusz lately the water in most of the wells was found to contain a considerable amount of organic matter, probably of vegetable origin, as the wells are uncovered, and are receptacles of various kinds of filth blown into them during dust-storms. Besides, they have not been cleared out properly since they were dug, and it is not surprising to find the water contaminated; indeed it may be pronounced suspicious, if not impure; the quantity of dead leaves that drop into the wells from trees that surround and overhang them being alone sufficient to pollute the water, and account for the organic matter, especially as the deposit has been allowed to accumulate and left undisturbed for years. I would recommend that the wells be thoroughly cleared out and afterwards covered in, and the water pumped into troughs for distribution; special wells protected by trap-doors should be set apart for drinking water and dietetic purposes; the bheestie's mussucks kept under strict surveillance as regards their internal cleanliness, and disinfected when necessary, as it is feared the same skin is indiscriminately used to carry water either for drinking or building purposes, and of qualities widely different.

6. Food is abundant, of good quality, and moderate in price. The following table shows the description and average quantity consumed daily by a healthy sowar:—

Food.

	Mussulmans.		Hindus.		Brahmins.	
	Average Quantity.	Amount.	Average Quantity.	Amount.	Average Quantity.	Amount.
		Rs. a. p.		Rs. a. p.		Rs. a. p.
Flour, wheaten	lb. 1 ozs. $4\frac{4}{15}$	0 0 $7\frac{13}{15}$	lb. 1 ozs. $4\frac{4}{15}$	0 0 $7\frac{10}{15}$	lb. 1 ozs. $4\frac{4}{15}$	0 0 $7\frac{13}{15}$
Rice, 2nd sort	„ 3 $\frac{1}{5}$	0 0 $2\frac{2}{15}$	„ 3 $\frac{1}{5}$	0 0 $2\frac{2}{15}$	„ 3 $\frac{1}{5}$	0 0 $2\frac{2}{15}$
Mutton	„ 4	0 0 6	„ 4	0 0 6	.....	.....
Dhall, toor	„ 4	0 0 3	„ 4	0 0 3	ozs. 4	0 0 3
Ghee	„ 2	0 0 $7\frac{1}{2}$	„ 2	0 0 $7\frac{1}{2}$	„ 2	0 0 $7\frac{1}{2}$
Vegetables	„ 4	0 0 3	„ 4	0 0 3	„ 4	0 0 3
Salt	drs. 5	0 0 $\frac{2}{15}$	drs. 5	0 0 $\frac{2}{15}$	drs. 5	0 0 $\frac{2}{15}$
Curry-stuff	oz. 1	0 0 4	oz. 1	0 0 4	oz. $\frac{1}{2}$	0 0 2
Fish	ozs. $2\frac{2}{5}$	0 0 $\frac{13}{30}$	ozs. $2\frac{2}{5}$	0 0 $\frac{13}{30}$	.....	.....
Fowl	No. $\frac{1}{15}$	0 0 $3\frac{1}{5}$	.....	.....	.....	.....
Milk	ozs. $2\frac{2}{15}$	0 0 1	ozs. $2\frac{2}{15}$	0 0 1	ozs. $4\frac{4}{15}$	0 0 2
Sugar	„ $\frac{4}{15}$	0 0 $\frac{4}{5}$	„ $\frac{4}{15}$	0 0 $\frac{4}{5}$	„ $\frac{8}{15}$	0 0 $1\frac{1}{5}$
Average cost of diet per head per day	.....	0 3 3	.....	0 3 0	.....	0 2 $5\frac{1}{4}$

7. During the hot season the men are clad in white clothing, and in cloth until the

Clothing.

arrival of the water in camp in May or June, when they can easily wash their white kit in the neighbouring nallahs, but this necessitates the wearing of cloth clothing by European officers on parades when the heat is very oppressive. The sheep-skin over-coat worn by the Native officers and men in the cold season should be made so as to button round the neck, and sufficiently long in the sleeves to cover the elbow-joint; and the change in the clothing should be made to meet the vicissitudes of temperature, and not the habits and convenience of the men.

8. Out-post duty has an injurious effect on the health of the men, as they are exposed to extremes of temperature in unsuitable quarters and often in the open air, where water is scanty and bad; hence their weak and anæmic condition on their return to head-quarters. To the trying service at the out-post stations may be attributed a large proportion of the sickness and mortality of the Frontier Force, as the most intractable cases of fever that I ever met with were contracted at these places. There is no gymnasium, but the men often engage in such sports as tent-pegging, tilting at the ring, and lime-cutting on brigade holidays, when prizes are awarded to those who distinguish themselves most. These games have only been introduced lately, and are much enjoyed by the best riders.

9. A new standard guard has been erected since last year, which consists of a guard-room and a cell, with a verandah on one side only. The wall between the cell and guard-room should be loop-holed for ventilation purposes, and the verandah should be extended all round to protect the building from the fierce rays of the sun.

10. The regiment has not been out marching this year, but is next for duty, and will probably go round the out-posts, or into the frontier districts, before the end of the cold season.

11. Nothing has been done to improve or extend the only ward that constitutes the hospital; and as I drew attention to its defects in my annual reports for 1873 and 1874 it is unnecessary to allude to the subject again. To prevent over-crowding I had two tents pitched at the end of the hospital, and used them during the months of October, November, and December in addition to the hospital ward. Owing to the disproportion between the cubic capacity and superficial area of the ward, only 12 patients can be accommodated in it without over-crowding the beds, as the roof is unnecessarily high compared with the floor space. The roof of the hospital latrine has been raised since last year—an improvement that was much needed, and the dry-earth system in conjunction with carbolic acid and McDougall's powder is successfully carried out. These disinfectants I consider absolutely necessary to ensure safety, and to preclude the possibility of danger arising from the effluvia to the hospital assistant, the window of whose room overlooks the privy, which is small and confined in a corner without sufficient ground space. Dry earth alone carefully applied would undoubtedly be sufficient for a large, open, and well-constructed latrine situated in a suitable place, but in the absence of these arrangements I do not consider it advisable to dispense with the use of disinfectants. The hospital water-supply is drawn from a neighbouring well, and stored in a skin which is suspended from a tripod in front of the door. Properly-constructed filters should be provided, as natives are given to the habit of dipping their drinking vessels with their hands, which are not always clean, into the ghurras commonly used for filtering purposes.

12. The admissions during the year were 703, and 21 remained on 1st January 1875—total treated 724, being an increase of 206 over the admissions for 1874. Actual number of persons treated 290. Of the total treated 431 cases were admitted for ague, which was more prevalent than usual this year, especially from October to December. Next in order of frequency were contusions of the lower extremity, ulcers, boils, dysentery, and diarrhœa; the two latter are attributable to the use of unripe fruit and tainted water which flows through camp in canals and ditches, and, as may be imagined, contains a considerable amount of organic matter. There were 4 deaths in hospital and 3 out of hospital while on leave, and 26 men were invalided during the year.

13. The principal causes of sickness were malaria and the vicissitudes of temperature, which, strictly speaking, may be said to be irremediable, and can only be dealt with on preventive principles.

14. Remittent fever caused 3 of the casualties that occurred; delirium, I notice, is invariably a fatal symptom in such cases. The fourth case died from pneumonia.

15. Of the cases that proved fatal in hospital 3 were Mahomedans and 1 Hindu; those that died out of hospital while on leave in Hindustan were 2 Mahomedans and 1 Hindu.

16. The rainfall during the year was 3 inches and 7 cents, and *per se*, so far as I can judge, has not exerted any unfavourable influence on the health of the troops.

- Vaccination. 17. 14 cases were vaccinated, and 28 re-vaccinated successfully.
18. The general health of the men has been unsatisfactory, as will be seen from the large number of re-admissions—434—as compared with the actual number of men treated—290, and their physique is decidedly below par—the inevitable result of service in such a trying climate on this frontier.
- General Health and Physique of the Men.
19. The number of recruits entertained during the year was 39, and they suffered very much from fever, as recruits always do here for the first 2 or 3 years of their service, more especially natives of the Decan.
- Special Observations.
20. The regiment has suffered considerably from sickness during the year, although the mortality was not so high as in 1874. The cause of the unusual prevalence of malarious fever may be traced to the large extent of the surrounding country flooded during the inundation season and the long time it took to dry up. The average number of daily sick was 10·7, proportion of daily sick to strength 3·01 per cent., admissions to strength 197·47 per cent., deaths to strength 1·12 per cent., deaths to treated 56, treated to strength 203·37, average number of days in hospital of actual number of persons treated 13·47, average number of days in hospital of total treated 5·39.
- Resumé of the whole.
21. There are no pupils attached to the regiment, but the hospital assistants receive instruction in materia medica, medicine, and surgery. On the former subject they are examined twice a week; on the latter clinically as opportunity offers.

ANNUAL REPORT ON SIND SORE FOR 1875.

During the year 57 cases of boils and ulcers were treated, 36 of the former and 21 of the latter. As no definite conclusion has been arrived at yet as regards the cause and origin of these sores I may refer to my report for 1873, copy of which I append for a description of the disease. Boils recur annually in the hot season, and may be caused by the excessive action of the skin, or probably are of parasitic origin. The fact of having once suffered from "Sind ulcers" appears to me to secure an immunity to patients of healthy constitution from a recurrence of ulcers but not boils.

ANNUAL REPORT ON SIND SORE FOR 1873.

The Sind sore, in my opinion, may be ascribed to climatic causes, as all ordinary wounds that came under treatment were prone to unhealthy action, and assumed the characteristic appearance of the Sind ulcer, which is the result of a boil. The Sind boil is of a furunculoid nature, and is a small, red, circumscribed, hard tumour, very painful, as the inflammation implicates the skin and subjacent areolar tissue, and, as a rule, terminates in suppuration and ulceration. The ulcer is at first covered with dark, granular matter, the edges are irregular and frequently undermined, and the discharge thin and dark-coloured. The predisposing causes are the debilitating effects of malaria on the system giving rise to anæmia and a relaxed and impaired state of constitution; the exciting causes are the excessive heat and moisture during the months of June, July, and August, and in all probability the drinking water which soaks rapidly into the wells at that time of the year through ground saturated with organic matter. The treatment has been perfect rest to the part, the ulcer touched with nitric acid, followed by a poultice, and afterwards a lotion of carbolic acid, quinine and iron being administered at the same time. In the most obstinate cases change of air is essential to the healing of the sore.

REMARKS BY DEPUTY SURGEON-GENERAL J. R. MILLER, M.D.

The lines, built 4 years ago, need not be again described. Like those of the other two regiments they are substantial. Cross-ventilation, in place of from the door to the roof, is required, and also separate accommodation for the trooper's saddles and accoutrements. Were these matters attended to, the lines would be entirely satisfactory.

This is the only regiment which has abolished the system of open latrines between the lines of pendalls.

The ordinary duties of the men are not prejudicial to health, but Surgeon MacRury says it is a different matter when they are absent on out-post duty. The men have at those times

unsuitable quarters, are much exposed to climatic influences, water is often bad and of limited quantity; and on their return to head-quarters their weakly and anæmic condition fit them rather for the hospital than the parade-ground. The surgeon still "supplements" the dry-earth system with disinfectants; but this he explains. When the new hospital is built, the dry-earth system can then be carried out without these adventitious aids. Water is from a neighbouring well, of a quality similar to those elsewhere described. Filters are recommended.

Vaccination.

In this corps vaccination shows more favourably than in the others. 14 primary and 28 cases of re-vaccination were successfully performed.

The physique of the men is as described in my former report; nor is it likely to be improved under the present system of recruiting, as also retaining the regiment continuously in Jacobabad. While the mortality has been less, the general health has been worse than for 1874, as is seen by the list of treated, which gives a total of 724 for the last, against 503 for the previous year, and which is further strengthened by the significant fact of 434 admissions to 290 persons.

H. M.'s 30th Regiment N. I., or Jacob's Rifles.

JACOBABAD.—In medical charge of Surgeon E. TOOTELL; Strength, 583·2

1. The regiment has been located at Jacobabad since its formation in 1858. 420 men went on detachment duty; each detachment consisted of about 14 men, and stayed at the out-post for one month.

2. Abundant in quantity and good in quality, except just before the inundation, when the well water becomes a little brackish from the amount of salt in the soil.

Food.

3. There is no lack of food of good quality, and fairly cheap.

Clothing.

4. In the hot weather light American drill; in the cold, Norfolk jacket of thick cloth, thick trowsers, with gaiters attached, the whole forming a very comfortable dress, and with a great-coat sufficiently warm. The boots, however, are to be objected to; they seldom fit, being too large for the majority of the men, the result being admissions to hospital for shoe-bites and constant shoe-leave.

Duties.

5. The duties do not injuriously affect the health of the men. Gymnasium practice compulsory for recruits, and used by many others; wrestling is also a favourite pastime.

Hospital.

6. Conveniently situated close to lines and facing W.; there is plenty of space around it for free circulation of air. It contains 29,376 cubic feet of space and 1,224 square feet of superficial area, which with 16 beds in it represents 1,836 cubic feet of space and 76·8 square feet superficial area for each patient. Perfect cross-ventilation exists. As shown above, there is ample space for 16 men; but, on looking at the following list of admissions and average daily sick for the past year, it is evident that the accommodation is far below the wants of the regiment:—

				Admissions.	Average Daily Sick.					Admissions.	Average Daily Sick.
January	...	...	...	57	31	July...	...	...	...	36	9·4
February	...	...	...	60	40	August	..	...	...	56	11
March	...	...	...	63	31	September	...	...	...	76	30
April	...	...	...	18	15·2	October	...	...	...	138	45
May...	...	...	...	23	7·5	November	...	...	...	164	43
June	...	...	...	25	5·8	December	...	...	...	113	42

From the last paragraph it will be seen that a fresh ward is necessary for the hospital, and for this there is abundance of space. The dry-earth system is followed, and the latrine,

which is within 30 yards of the hospital, is kept clean and neat. The water-supply of the hospital is good and abundant from a well near the hospital.

7. There have been 829 admissions during the year, which show an increase of 202 over last year's. This is mainly due to fever. The number of cases of ague in 1874 was 249, and this year 427; the cases were mostly of the quotidian type, and generally uncomplicated, except in the months of November and December, when bronchitis and pneumonia were apt to supervene. Except in the ratio of deaths to treated, this year's sickness contrasts badly with that of the last 2 years, as is seen in the following table:—

	1873.	1874.	1875.
Average strength	595	592	583·2
Total admissions	624	627	829
Admissions for ague	316	249	427
Ratio of admissions to strength	104·8	105·9	142·1
Do. deaths to strength	1·8	2·5	2·2
Do. deaths to treated	1·6	2·5	1·5
Average number of daily sick	16	20·	25·9

All the cases returned to duty except 2, one of whom was invalided for enlarged spleen and one had sick-leave granted him after being 2 months in hospital. Chest-affections include 47 cases—bronchitis 31 and pneumonia 16. Of the latter 5 died, the type of the disease being essentially asthenic, requiring great stimulation, which failed in some cases. The great mortality I consider is due to poor feeding, the debilitated constitution of the patient owing to repeated attacks of fever, and the lateness at which they seek medical assistance. There were 40 cases of diarrhœa, 5 cases of dysentery; the dysentery cases were none of them severe, and all recovered under the treatment of ipecacuanha followed by quinine and iron. A case of peritonitis died 3 days after admission. Shoe-bites numerous, owing to the soldiers being supplied with badly-fitting shoes. 4 cases of chancre, 1 of secondary syphilis: this must not be taken as a gauge of the extent of the disease in the regiment, as many hide the disease, and are treated by native doctors. 2 cases of punctured wound of chest and 1 of punctured wound of back, all these the work of a comrade and made with a bayonet; the latter case died, the bayonet having passed in between the 10th and 11th ribs an inch and half to right of spine, and making its exit to the right of the ensiform cartilage: pneumonia supervened. There were 13 deaths in hospital, and one out; the latter that of a subedar-major who was shot on parade, and died before reaching the hospital. 5 cases of pneumonia proved fatal, and the other deaths included 2 from œdema of lungs—one a patient who had aneurism of aorta, and the other scurvy. One each from paralysis, splenitis, debility, ague, wound of chest, and peritonitis. 50 cases were brought before the committee, and all passed except one. The invalided men included 26 cases of debility, 8 chronic rheumatism, 5 defective vision, 6 enlarged spleen, 1 syphilitic ulcer, 1 deafness, 1 fracture, 1 chronic bronchitis. This return shows no improvement on last year, when the same number of men were invalided.

Causes of Sickness. Conditions of climate under which the men live, and constant employment under the same conditions without any change.

8. The return of this year disproves the statement made by my predecessor regarding the mortality among Hindus and Mussulmans; he gives the Mortality according to Race. returns for 4 years, and I add to them that of this year:—

					HINDUS.			MUSSULMANS.		
					Strength.	Ratio Admissions to Strength.	Deaths to Strength.	Strength.	Ratio Admissions to Strength.	Deaths to Strength.
1871	...	...	...	...	341	140·5	3·5	358	157·3	3·3
1872	...	...	...	...	326	143·6	4·3	366	126·2	1·4
1873	...	...	...	...	232	129·3	2·6	356	93·5	1·2
1874	...	...	...	...	265	123·8	2·7	360	83·3	2·2
1875	...	...	...	...	249·1	118·5	1·1	334·1	161·1	3·03

Rainfall. 9. Total for year 2 inches 83 cents: little influence on disease.

Vaccination and Re-vaccination. 10. Primary vaccinations 6, successful 1, re-vaccinated 6 ; successful 4 and unsuccessful 2.

Return showing Degree of Protection by Small-pox and Vaccination.

			Strength.		Protected by Small-pox.		Protected by Vaccination.		Unprotected.		Remarks.
			Europeans.	Natives.	Europeans.	Natives.	Europeans.	Natives.	Europeans.	Natives.	
Regiment ...	Males	...	6	656	...	473	6	183	Sickly ; not fit.
	Females	...	1	138	...	128	1	10	...	...
	Children	...	...	110	...	8	...	100	...	2
Regimental Lines or Bazaar.	Males	188	...	151	...	37	
	Females	...	...	15	...	12	...	3	...	...
	Children	...	...	17	...	4	...	13	...	...
Total...			7	1,124	...	776	7	346	...	2	

Health and Physique.

11. Health of regiment worse than last year, but appearance of men on the whole fairly good.

Sind Sore.

12. There have been no cases of Sind sore under treatment since I have been in medical charge.

REMARKS BY DEPUTY SURGEON-GENERAL J. R. MILLER, M.D.

Lines unchanged, are in good condition, and the accommodation is sufficient. The great want previously noticed—verandahs to keep off the afternoon sun—has not yet been supplied ; cross-ventilation also would be a great improvement on the present imperfect arrangement. Conservancy of regiment is strictly attended to ; the latrines, however, are on a defective principle, which prevents their being thoroughly cleansed. Water is abundant, and is similar to what has been described for the rest of camp. Sewage contamination is not suspected, but organic vegetable impurities exist to some extent, and by the time annual inundation is due the supply has become brackish. Drainage is at a minimum, owing to the uniform flatness of the ground. Refuse water is disposed of by absorption and evaporation. The duties are the usual regimental ones, and no injurious effects are attributed to them. In this regiment there is a gymnasium to which all recruits are sent, and many of the others attend of their own accord ; the men are greatly improved in health and appearance by frequenting it. Hospital is well placed both as regards position and compound space : some of the neighbouring commissariat followers' huts, however, might be removed with advantage. The ventilation is good, and a stove with a sufficiency of firewood having been sanctioned, it is fairly comfortable ; the accommodation, however, is lamentably deficient, affording room for not more than 20 beds. In the hot season, when the sick are few, this is not much felt, but during the sickly season the greatest inconvenience and discomfort are experienced. In the cold weather tents are a very poor shelter for sick men, particularly to those suffering from chest-affections which are common at that season ; but as Government have decided to add an additional ward, this great want will now soon be remedied. Hospital latrine fairly clean, but in bad repair. The dry-earth system only partially carried out.

STATEMENT showing the SICKNESS and MORTALITY among the NATIVE

N.B.—The regiments are placed a

Regiment.	Station.	Movements during the year.	Average Daily Sick.	Average Daily Strength present during the year.	Remained on 1st January 1875.	Admitted during the year.	Total treated.	Discharged cured.	Discharged otherwise.	Died in Hospital.	Died out of Hospital.	Remaining.	Average Daily Sick per Cent. to Average Strength.	Ratio per Cent. of Admissions to Average Strength.	RATIO PER CENT OF DEATH.				Invalided	
															In Hospital.		Out of Hospital.			
															To Average Strength.	To Average Strength.	To Average Strength.	To Average Strength.		
PRESIDENCY DIVISION, ADEN																				
20th Regiment N. I. ..	Bombay ..	None.	29.5	621.7	31	624	655	590	29	9		27	4.7	100.3	1.4	1.6	43	18		
21st do. ..	Do. ..	None.	17.4	586.0	10	371	381	323	37	5	4	16	2.9	63.3	1.3	0.3	22	22		
Details attached to 21st Regiment N. I.	Do. ..	None.	2.5	35.0		32	32	18	6	1		7	7.1	91.4	1.1	2.8	3	2		
Detachment, 4th Regiment N. I.	Do. ..	None.	6.3	141.5	4	133	137	122	7	2	2	6	4.5	93.9	1.4	1.4	12	4		
Right Wing, 7th Regiment N. I.	Tanna ..	None.	8.2	301.0	1	267	268	245	6	5	1	12	2.7	88.7	1.9	1.7	6	6		
26th Regiment N. I. ..	Surat ..	From Surat to Poona.	34.4	614.0	24	1,240	1,264	1,141	78	11	1	34	5.6	201.9	0.9	1.7	19	20		
Detachment, 21st Regt. N. I.	"Dalhousie" ..	None.	0.3	8.0		14	14	10	3			1	3.7	175.0		0.03	0.2			
Do. do. ..	Bassadore ..	None.	2.0	12.0		155	155	152	3				16.6	129.2						
Do. do. ..	"Hugh Rose" ..	None.	0.2	10.0		14	14	13	1				2.0	140.0			1			
Do. do. ..	"Abyssinia" ..	None.		8.0																
Do. do. ..	"Quangtung" ..	None.	0.3	8.0		9	9	9					3.7	11.2						
Do. do. ..	Bushire ..	None.	0.4	16.0		37	37	36		1			2.5	231.2	2.7	6.2				
Do. do. ..	"Magdala" ..	None.		8.0																
Do. do. ..	Bagdad ..	None.		10.0																
Do. 20th Regt. N. I.	Janjira ..	None.	1.4	17.0		8	8						8.2	47.0						
Total..			102.7	2,398.2	70	2,904	2,974	2,667	170	34	8	103	4.3	121.3	1.1	1.4	0.3	0.3	100	72
2nd Grenadier Regiment N. I.																				
Detachment do. ..	Perim ..	Proceeded to Belgaum in December.	13.5	592.0	10	303	373	305	59	1	4	8	2.3	61.3	0.5	0.2	1.1	0.6	28	24
		Joined its head-quarter at Aden in November to proceed to Belgaum.	1.1	45.8		21	21	14	7				2.4	45.8						
2nd Company, Native Artillery.	Aden ..	None.	1.1	66.8	1	29	30	25	4	1	1		1.6	43.4	3.3	1.4	3.3	1.4		1
5th Company, Sappers and Miners.	Do. ..	None.	1.5	97.0		46	46	44				2	1.5	47.4					4	
Aden Troop ..	Khor Mucksa ..	None.	5.5	90.7	4	188	192	190				2	6.1	207.3					2	4
Total..			22.7	892.3	15	647	662	578	70	2	5	12	2.5	72.5	0.3	0.2	0.3	0.6	26	29
Total Presidency and Aden.			125.4	3,288.5	85	3,551	3,636	3,245	240	36	13	115	3.8	107.9	0.9	1.1	0.4	0.4	126	101
POONA																				
1st Grenadier Regiment N. I.	Poona ..	Left for Ahmedabad on 20th December 1875.	24.6	629.5	19	779	798	725	52	3		18	3.9	123.7	0.4	0.4			24	30
8th Regiment N. I. ..	Do. ..	None.	28.1	690.0	29	1,381	1,410	1,366	16	2	1	26	4.1	200.1	0.1	0.4	0.1	0.1	32	16
17th do. ..	Do. ..	Marched to Surat in December.	22.8	658.5	19	791	810	779	10	3	4	18	3.4	120.2	0.4	0.4	0.5	0.6	16	10
1st do. N. L. C. ..	Do. ..	From Poona to Bombay and back.	8.9	301.6	10	310	320	290	14		1	7	2.9	102.7				0.3	7	8
Sappers and Miners ..	Kirkee ..	None.	9.2	489.5	7	281	288	260	4	4		11	1.9	57.5	1.4	0.8			6	2
Detachment, Poona Horse ..	Dhulia ..	Joined its head-quarters at Sirur to proceed to Bombay in November.	1.9	91.5	2	31	33	28	4	1			2.1	33.9	3.0	1.0				4
Head-quarters, 4th Regiment N. I.	Satara ..	147 men marched to Asirgarh.	5.6	352.5	5	308	313	298	9	1		5	1.6	87.4	0.3	0.2			13	7
19th Regiment N. I. ..	Sholapur ..	Marched to Poona on 5th November.	14.0	668.0	21	625	646	599	33	2	2	12	2.1	93.6	0.3	0.3	0.3	0.3	8	8
13th do. ..	Ahmednagar ..	Proceeded to Malegaon in November 1875.	14.7	674.0	11	543	554	532	12	2		8	2.2	80.5	0.4	0.3			12	12
5th do. ..	Belgaum ..	Marched to Poona in December.	14.4	631.0	13	407	420	394	9	4	1	13	2.3	64.2	0.9	0.6	0.2	0.1	48	3
6th do. ..	Do. ..	Marched to Aden in October.	11.1	610.5	5	356	361	344	8	4	3	5	1.8	58.3	1.1	0.6	0.8	0.4	7	5
Poona Horse ..	Sirur ..	Proceeded to Bombay in October and returned to Poona in December.	10.6	308.3	8	292	300	258	26	3		13	4.3	94.7	1.0	0.9			15	6
12th Regiment N. I. ..	Dharwar ..	None.	18.3	685.0	12	363	375	354	2	4		15	2.7	52.9	1.1	0.5			6	
Detachment, 4th Regt. N. I. ..	Asirgarh ..	None.	4.0	137.1	2	151	153	149	3			1	2.9	110.2					1	
14th Regiment N. I. ..	Kolhapnr ..	Proceeded to Belgaum in November.	20.2	524.0	9	419	423	378	25	4	3	21	3.8	79.9	0.9	0.7	0.7	0.5	25	10
15th do. ..	Malegaon ..	Proceeded to Ahmednagar in November.	14.4	608.0	13	517	530	467	38	2		23	2.4	85.0	0.4	0.3			13	5
Detachment, 14th Regiment N. I.	Kaladgi ..	None.	1.4	85.0	1	53	54	47	4	1		2	1.6	62.3	1.3	1.1			6	3
Total..			224.2	8,145.9	186	7,607	7,793	7,288	269	40	15	198	2.8	93.4	0.5	0.5	0.2	0.0	239	129

PROOPS serving in the BOMBAY PRESIDENCY during the Year 1875.

ey stood on the 1st July 1875.

Hindus.				Mahomedans.				Strength present on 31st December 1875.				Regiment.		Average Number of consecutive Nights in Bed.		Number of Recruits joined during the year.		CASTES.												REMARKS.						
Strength.		Died per Cent. to Strength in and out of Hospital and on Leave.		Strength.		Died per Cent. to Strength in and out of Hospital and on Leave.												Christians.			Hindus.			Mahomedans.			Others.									
																				Europeans.			Eurasians.			Natives.										
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STATEMENT showing the SICKNESS and MORTALITY among the NATIVE

Regiment.	Station.	Movements during the year.	Average Daily Sick.	Average Daily Strength present during the year.	Remained on 1st January 1875.	Admitted during the year.	Total treated.	Discharged cured.	Discharged otherwise.	Died in Hospital.	Died out of Hospital.	Remaining.	Average Daily Sick per Cent. to Average Strength.	Ratio per Cent. of Admissions to Average Strength.	Ratio per Cent. of Death.				In-validated.	
															In Hospital.		Out of Hos- pital.		For Discharge Service.	For Change of Climate.
															To be treated.	To Average Strength.	To be treated.	To Average Strength.		
NORTHERN																				
3rd Regiment N. I. ..	Ahmedabad	None.	32.4	700.5	20	1,226	1,246	1,167	41	15	..	23	4.9	175.0	0.2	2.1	..	40	22	
Detachment, 18th Regiment N. I. ..	Sadra ..	Arrived from Deesa on 20th March.	0.4	41.8	..	39	39	39	..	..	..	..	0.9	93.3	..	..	..	..	..
7th Regiment N. I. ..	Rajkot ..	None.	6.8	247.0	7	284	291	260	18	4	1	9	2.8	114.9	1.4	1.6	0.3	25	4	
23rd do. ..	Do. ..	None.	15.9	551.2	16	550	566	500	44	..	..	13	2.9	99.7	1.6	1.6	..	30	15
1st Company, Native Artillery.	Do. ..	None.	2.6	124.0	1	105	106	100	5	1	..	..	2.4	84.6	0.9	..	..	5	..
Squadron, 2nd Regiment L. C. ..	Do. ..	None.	3.9	146.0	5	119	124	114	6	1	1	3	2.7	81.5	0.8	0.4	0.3	4	2	
11th Regiment N. I. ..	Bhuj ..	None.	16.1	671.0	18	314	332	299	15	4	..	14	2.4	46.8	1.2	0.5	..	21	2	
2nd do. N. L. C. ..	Deesa ..	None.	9.4	288.9	9	243	252	234	10	..	..	7	3.4	84.1	..	..	..	8	..
13th do. N. I. ..	Do. ..	None.	21.2	583.0	23	732	755	714	18	..	..	23	3.6	125.5	0.4	0.3	..	30	8
16th do. do. ..	Mhow ..	Marched to Nusseerabad in November.	24.7	547.7	32	749	781	730	34	3	2	12	4.5	136.7	..	..	0.4	59	3
25th do. do. ..	Do. ..	None.	22.5	517.0	10	744	754	725	18	5	..	10	4.4	143.9	0.6	0.9	0.3	44	17	
3rd do. L. C. ..	Neemuch ..	None.	12.3	316.0	18	361	379	367	2	1	3	9	3.7	114.2	0.1	0.1	0.4	13	1	
24th do. N. I. ..	Do. ..	None.	23.2	622.0	20	1,015	1,035	996	3	1	..	25	3.6	166.4	0.3	0.3	..	25	3	
Squadron, 3rd Regiment L. C. ..	Nusseerabad	None.	3.7	122.6	9	152	161	153	4	11	2	4	3.2	123.9	1.1	1.1	0.2	..	4	
23rd Regiment N. I. ..	Do. ..	Left in November for Mhow.	17.9	629.0	10	665	675	624	17	3	33	2.8	105.7	..	..	..	..	27	5
Detachment, 10th Regiment N. I. ..	Augur ..	None.	15.4	223.3	10	392	402	361	27	1	3	14	6.7	175.5	0.1	0.1	0.4	18	13	
Squadron, 1st Regt. N. L. C. ..	Baroda ..	None.	6.6	158.1	..	233	233	223	1	..	..	9	4.4	147.3	..	..	..	3	1
22nd Regiment N. I. ..	Do. ..	None.	26.8	662.2	27	779	806	758	17	..	..	22	4.0	117.6	..	..	..	30	11
9th do. do. ..	Do. ..	Arrived at Baroda from Ahmedabad in January.	15.6	648.3	15	481	496	421	53	11	6	11	2.6	74.2	1.1	1.3	0.5	25	8	
Detachment, 7th Regiment N. I. ..	Dwarka ..	Arrived at Dwarka on 1st February.	2.8	80.7	..	115	115	112	2	..	..	1	3.9	142.5	..	..	..	..	2
10th Regiment N. I. ..	Mehidpur ..	None.	24.3	361.0	17	858	875	793	35	..	..	22	6.6	237.7	2.9	6.9	0.1	20	21
Detachment, 23rd Regiment N. I. ..	Barda Choki ..	On 1st September 1875 marched to Forebunder and returned on the 2nd December.	7.7	87.9	7	283	290	274	4	25	1	7	9.0	321.9	1.7	6.7	..	4	4	
Detachments 16th and 25th Regiments N. I. ..	Indore ..	None.	6.0	217.9	6	275	281	264	13	1	..	3	2.7	126.2	0.3	0.4	..	..	2
Total..			318.2	8,547.1	290	10,714	10,994	10,228	387	106	27	274	3.7	125.3	0.9	1.2	0.2	437	148	
SIND																				
29th Regiment N. I. ..	Kurrachee ..	From Hyderabad to Kurrachee.	20.8	627.8	27	538	565	537	5	4	2	19	3.3	85.7	0.7	0.6	0.4	22	5	
27th do. ..	Hyderabad ..	From Kurrachee to Hyderabad.	27.8	679.0	32	629	661	624	3	2	1	32	4.1	92.6	0.9	0.1	0.2	38	3	
30th do. ..	Jacobabad ..	None.	25.9	583.2	30	829	859	802	14	13	..	30	4.4	142.1	1.5	2.2	..	49	4	
1st Sind Horse ..	Do. ..	None.	10.1	304.5	12	570	582	544	18	6	3	14	3.3	187.2	1.0	1.9	0.5	17	18	
2nd do. ..	Do. ..	None.	9.6	287.0	9	334	343	312	6	3	2	22	3.4	116.0	0.9	1.0	0.5	18	6	
3rd do. ..	Do. ..	None.	10.7	356.0	21	703	724	704	4	4	3	12	3.0	197.4	0.6	1.1	0.4	26	4	
Total..			104.9	2,837.5	131	3,603	3,734	3,523	50	33	11	129	3.7	126.9	0.9	1.1	0.3	170	40	
Grand Total..			772.7	22,819.6	682	25,475	26,157	24,282	946	213	66	716	3.4	111.6	0.8	0.9	0.2	972	418	

TROOPS serving in the BOMBAY PRESIDENCY during the Year 1875—continued.

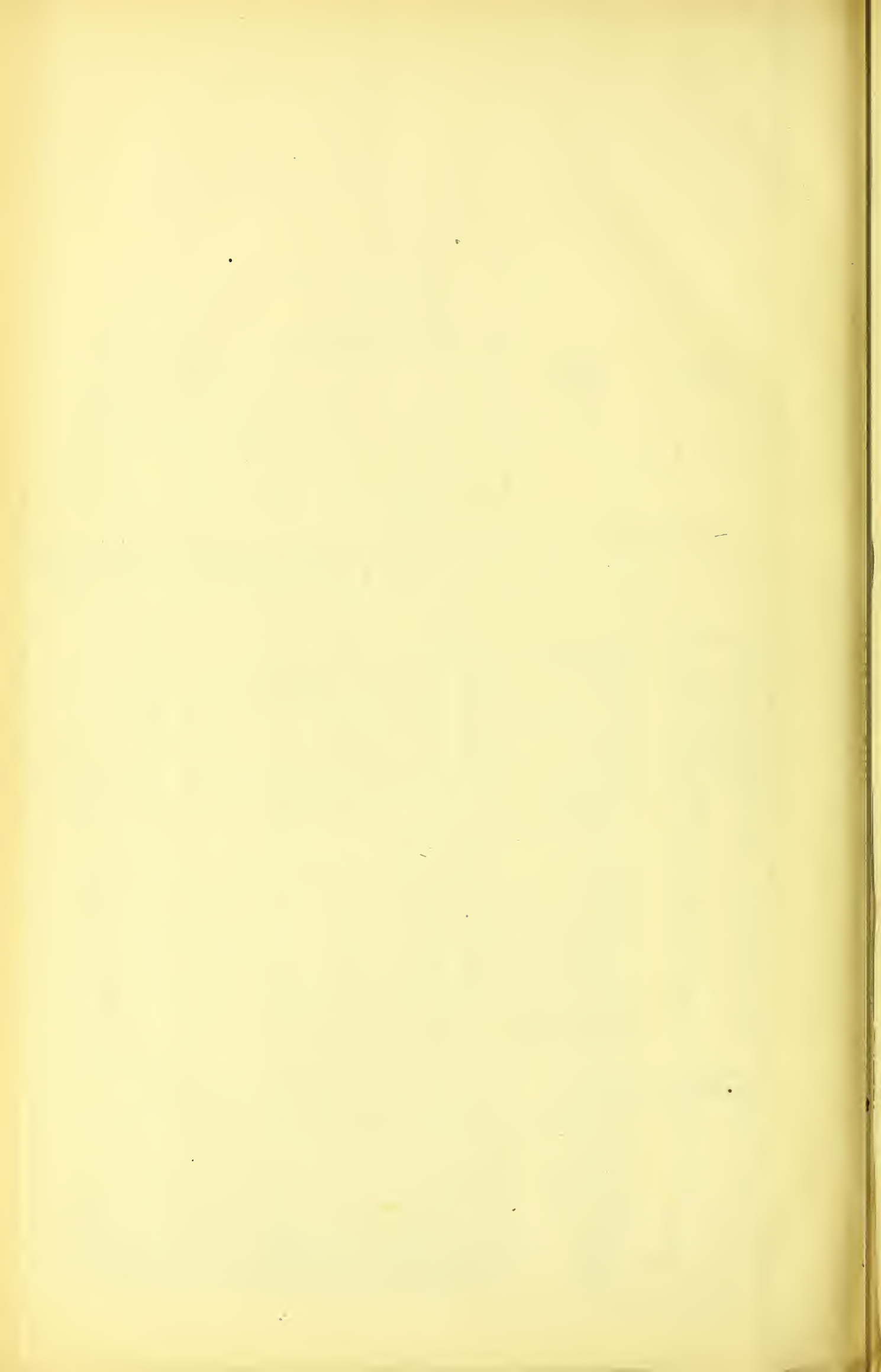
Hindus.				Mahomedars.				Strength present on 31st December 1875.	Regiment.	Average Number of consecutive Nights in Bed.	Number of Recruits joined during the year.	CASTES.												REMARKS.					
												Christians.						Hindus.		Mahomedans.		Others.							
												Europeans.			Eurasians.			Natives.											
												Average Daily Strength.	Died in Hospital.	Died out of Hospital.	Average Daily Strength.	Died in Hospital.	Died out of Hospital.	Average Daily Strength.	Died in Hospital.	Died out of Hospital.	Average Daily Strength.	Died in Hospital.	Died out of Hospital.		Average Daily Strength.	Died in Hospital.	Died out of Hospital.	Average Daily Strength.	Died in Hospital.
Strength.	Died per Cent. to Strength in and out of Hospital and on Leave.	Strength.	Died per Cent. to Strength in and out of Hospital and on Leave.																										
DIVISION.																													
529	2.2	106	2.7	667	3rd Regiment N. I.	3.7	67	7.0	..	..	..	..	2.0	..	..	520.2	12	..	120.2	3	..	58.0	..	..			
34	..	7	..	41	Detachment, 18th Regiment N. I. ..	2.1	..	..	..	..	..	..	..	..	..	34.1	..	..	7.7	..	..	..	..	..
194	2.0	40	2.5	243	7th Regiment N. I.	4.5	47	4.0	..	..	..	..	9.0	..	..	197.0	3	1	40.0	1	..	1.0	..	..			
452	1.7	70	1.4	542	28th do. do.	7.4	29	5.1	..	..	..	..	9.1	..	..	465.3	8	..	66.5	1	..	10.3	..	..			
89	1.1	19	..	119	1st Company, Native Artillery, ..	8.5	3	2.0	..	..	..	..	1.0	..	..	93.0	1	..	20.0	..	..	10.0	..	..			
82	1.2	58	1.7	141	Squadron, 2nd Regiment L.C. ..	8	..	1.0	..	..	..	..	1.0	..	..	84.0	1	..	61.0	..	1	..	..	..		
622	0.6	76	..	702	11th Regiment N. I.	7.8	27	6.0	..	..	..	..	..	..	..	594.0	4	..	73.0	..	..	4.0	..	..			
187	..	135	0.7	326	2nd do. N. L. C.	6.6	35	5.1	..	..	4.0	..	5.4	..	..	160.5	..	..	124.0	1	..	..	..	..	
514	0.3	68	1.4	594	18th do. N. I.	7.2	33	6.0	..	..	4.0	..	7.0	..	..	502.0	..	2	70.0	..	1	..	..	..		
511	0.9	114	1.7	652	16th do. do.	6.0	71	5.5	..	..	..	..	11.5	..	..	451.9	3	2	73.2	2	..	11.1	..	..			
332	1.2	66	..	411	25th do. do.	5	98	5.4	..	..	..	..	3.9	..	..	435.4	1	3	70.6	..	..	7.1	..	..			
213	0.4	131	..	349	3rd do. L. C.	3.5	14	4.0	..	..	..	..	5.0	..	..	196.0	1	..	115.0	..	..	..	..	..
560	1.9	81	2.4	676	24th do. N. I.	5.5	75	6.0	..	..	..	..	19.0	..	..	512.0	9	2	75.0	2	..	16.0	..	..			
93	..	42	2.3	135	Squadron, 3rd Regiment L. C. ..	6.5	..	0.9	..	..	..	..	0.1	..	..	79.5	..	..	43.0	..	1	..	..	..		
520	0.3	116	1.7	704	23rd Regiment N. I.	10	64	6.7	..	..	4.2	..	19.5	..	..	486.9	..	2	111.5	1	1	6.9	..	..			
154	..	47	..	211	Detachment, 10th Regiment N. I. ..	3.2	..	2.5	..	..	..	..	..	..	..	164.2	..	..	46.5	..	..	12.6	..	..			
104	..	52	..	156	Squadron, 1st Regt. N. L. C. ..	7	..	1.3	..	..	..	..	..	..	..	106.5	..	..	51.6	..	..	..	..	..
559	1.9	79	2.5	655	22nd Regiment N. I.	5.4	37	6.6	..	..	..	..	11.9	..	..	558.0	8	3	86.7	1	1	5.6	..	..			
602	2.6	74	1.3	687	9th do. do.	6	29	6.0	..	..	..	..	9.4	..	..	574.5	11	5	64.1	..	1	2.3	..	..			
71	..	16	..	83	Detachment, 7th Regiment N. I. ..	2.5	..	0.9	..	..	..	..	..	..	..	65.1	..	..	14.7	..	..	0.9	..	..			
334	6.2	42	11.0	387	10th Regiment N. I.	5.2	98	5.0	..	..	..	..	4.0	..	..	299.0	20	1	48.0	5	..	10.0	..	..			
75	6.6	10	..	83	Detachment, 28th Regiment N. I. ..	5.6	..	..	..	..	1.3	..	0.6	..	..	73.9	5	..	10.5	..	..	1.6	..	..			
191	0.5	14	..	203	Detachments 16th and 25th Regiments N. I. ..	4.0	..	2.4	..	..	..	..	6.6	..	..	193.3	1	..	20.5	..	..	3.5	..	..			
6,480	1.6	1,463	1.5	8,782		..	827	89.4	..	..	13.5	..	115.0	..	..	6,844.3	88	21	1,413.4	17	6	160.9	..	..			
DISTRICT.																													
90	..	583	1.0	676	29th Regiment N. I.	5.5	64	6.3	..	..	..	..	..	..	..	860.0	..	..	538.9	4	2	2.9	..	..			
132	..	546	0.5	680	27th do.	66	21	5.0	..	..	..	..	..	..	..	131.0	..	..	546.0	2	1	2.0	..	..			
284	1.0	340	2.9	624	30th do.	4	90	5.1	..	..	..	..	..	..	..	249.0	3	..	334.2	10	..	..	..	..	
15	20.0	370	1.6	385	1st Sind Horse	4	29	5.0	..	..	..	..	..	..	..	29.7	1	2	274.8	5	1	..	..	..		
40	2.5	345	1.1	385	2nd do.	4	43	4.0	..	..	..	..	..	..	..	51.0	1	..	236.0	2	2	..	..	..		
43	4.1	320	1.5	373	3rd do.	3.8	39	6.0	..	..	..	..	6.0	..	..	55.0	1	1	295.0	3	2	..	..	..		
609	1.6	2,504	1.3	3,123		..	286	31.4	..	..	..	..	6.0	..	..	601.7	6	3	2,221.9	26	8	4.9	..	..			
15,933	1.2	5,825	1.2	22,765		..	1,701	246.6	..	..	18.1	..	333.5	1	..	16,104.9	161	47	5,453.0	50	19	900.5	1	..			

Summary of the Statistics for the Year 1875 and 5 previous years.

Years.	Average Daily Strength.	Admissions into Hospitals.	Ratio per Cent. of Admissions to Average Strength, Mean of all.	Average Daily Sick per Cent. to Average Strength, Mean of all.	Deaths in Hospital.	Ratio of Deaths in Hospital per Cent. to Average Strength.	Ratio of Deaths in Hospital per Cent. to Admissions.	Deaths out of Hospital and on Leave.	Total Deaths out of the Average Strength in the year.	Ratio per Cent. of Total Deaths to the Average Strength.	Ratio per Cent. to Strength of Hindus who died in and out of Hospital and on Leave.	Ratio per Cent. to Strength of Mahomedans who died in and out of Hospital and on Leave.	Ratio per Cent. to Strength in Discharge the Service.	Ratio per Cent. to Strength in Invalided for Change of Climate.
1875 ...	22,819	25,475	111.03	3.38	213	0.93	0.83	66	279	1.22	1.30	1.18	4.27	1.83
1874 ...	22,750	26,601	116.92	3.67	176	0.77	0.66	72	248	1.09	0.99	1.12	4.60	1.73
1873 ...	22,967	29,035	126.86	3.82	165	0.71	0.56	81	246	1.07	}		4.35	2.11
1872 ...	22,903	36,209	158.09	4.54	226	0.98	0.62	95	321	1.40			3.98	2.13
1871 ...	22,959	29,733	129.50	4.31	236	1.03	0.79	97	333	1.45	}		3.12	2.10
1870 ...	22,715	28,380	139.08	4.33	191	0.84	0.68	95	286	1.26	}		3.71	2.33

ANNUAL GENERAL RETURN exhibiting the Sick of H. M.'s Native Troops in the Bombay Presidency for the Year 1875, compared with 1874, arranged according to authorized Classification and Nomenclature.

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APPENDIX II.

RETURN showing the Admissions and Deaths, &c., amongst the Native Troops of the Bombay Presidency at the several Stations for the Year 1875 compared with 1874.

Division	1875.							1874.						
	Regiment.	Station.	Average Strength.	Average Daily Sick.	Admissions.	Deaths in Hospital.		Regiment.	Station.	Average Strength.	Average Daily Sick.	Admissions.	Deaths in Hospital.	
PRESIDENCY DIVISION, ADEN, AND BOMBAY MARINE.	20th Regiment N. I.	Bombay	621.7	29.3	624	9		20th Regiment N. I.	Bombay	628	30.5	637	7	
	21st do.	Do.	586.0	17.4	371	5		21st do.	Do.	564	21.0	373	7	
	Details attached to 21st							Details attached to 21st						
	Regiment N. I.	Do.	35.0	2.5	32	1		Regiment N. I.	Do.	31	5.0	31	2	
	Detachment, 4th Regt. N. I.	Do.	141.5	6.3	133	2		Detachment, 4th Regt. N. I.	Do.	149	5.3	120	1	
	Right Wing, 7th do.	Tanna	301.0	8.2	267	5		Right Wing, 7th do.	Tanna	319	7.7	293	2	
	26th Regiment N. I.	Surat	614.0	34.4	1,240	11		26th Regiment N. I.	Surat	649	31.3	1,267	6	
	Detachment, 21st Regt. N. I.	On board the Steamer "Dal-housie"	8.0	0.3	14	...		Detachment, 21st Regt. N. I.	On board the Steamer "Dal-housie"	8	0.2	22	...	
	Do.	Bassadore	12.0	2.0	155	...		Do.	Bassadore	12	1.5	135	...	
	Do.	Bagdad	10.0	...	...	...		Do.	On board the Steamer "Con-stance"	7	0.3	15	1	
	Do.	On board the Steamer "Hugh Rose"	10.0	0.2	14	...		Do.	Bushire	16	1.3	47	...	
	Do.	Do. "Abyssinia"	8.0	...	...	...					
	Do.	Do. "Quang-tung"	8.0	0.3	9	...								
	Do.	Do. Bushire	16.0	0.4	37	1								
	Do.	Do. "Magdala"	8.0	...	...	...					
	Do.	Junjira	17.0	1.4	8	...		Do.	Junjira	17	0.3	19	...	
	2nd Gr. Regiment N. I.	Aden	592.0	13.5	363	1		2nd Gr. Regiment N. I.	Aden	636	18.2	440	6	
	2nd Co., Native Artillery	Do.	66.8	1.1	29	1		2nd Co., Native Artillery	Do.	75	1.4	59	...	
	5th Co., Sappers and Miners	Do.	97.0	1.5	46	...		5th Co., Sappers and Miners	Do.	94	2.4	77	...	
	Det., 2nd Gr. Regt. N. I.	Perim	45.8	1.1	21	...		Det., 2nd Gr. Regt. N. I.	Perim	51	0.1	19	...	
	Aden Troop	Khor Mucksa, Aden	90.7	5.5	188	...		Aden Troop	Khor Mucksa, Aden	87	6.9	307	...	
	Total...		3,288.5	125.4	3,551	36		Total...		3,343	133.4	3,861	32	

1875.							1874.						
Division.	Regiment.	Station.	Average Strength.	Average Daily Sick.	Admissions.	Deaths in Hospital	Regiment.	Station.	Average Strength.	Average Daily Sick.	Admissions.	Deaths in Hospital	
POONA DIVISION.	1st Gr. Regiment N. I.	Poona	629.5	24.6	779	3	1st Gr. Regiment N. I.	Poona	661	21.6	605	4	
	8th Regiment N. I.	Do.	690.0	28.1	1,381	2	8th Regiment N. I.	Do.	665	19.2	619	2	
	17th do.	Do.	658.5	22.8	791	3	17th do.	Do.	579	18.7	506	5	
	1st Regiment N. L. C.	Do.	301.6	8.9	310	1	1st Regiment N. L. C.	Do.	420	19.2	408	3	
	Sappers and Miners	Kirkee	488.5	9.2	281	4	Sappers and Miners	Kirkee	397	7.9	344	1	
	Detachment, Poona Horse	Dhulia	91.5	1.9	31	1	Detachment, Poona Horse	Dhulia	148	1.8	36	1	
	Hd.-qrs., 4th Regt. N. I.	Satara	352.5	5.6	308	1	Hd.-qrs., 4th Regt. N. I.	Satara	350	9.1	362	1	
	19th Regiment N. I.	Sholapur	668.0	14.0	625	2	19th Regiment N. I.	Sholapur	652	27.0	950	4	
	13th do.	Ahmednagar	674.0	14.7	543	2	13th do.	Ahmednagar	613	15.7	527	...	
	5th do.	Belgaum	634.0	14.4	407	4	5th do.	Belgaum	575	13.7	409	2	
	6th do.	Do.	610.5	11.1	356	4	6th do.	Do.	631	7.5	236	3	
	Poona Horse	Sirur	308.3	10.6	292	3	Poona Horse	Sirur	295	7.5	177	...	
	12th Regiment N. I.	Dharwar	685.0	18.3	363	4	12th Regiment N. I.	Dharwar	678	30.8	616	4	
	Detachment, 14th Regt. N. I.	Kaladgi	85.0	1.4	53	1	Detachment, 5th Regt. N. I.	Kaladgi	89	0.5	8	...	
	14th Regiment N. I.	Kolhapur	524.0	20.2	419	4	14th Regiment N. I.	Kolhapur	683	20.3	458	4	
DIVISION.	15th do.	Malegaon	608.0	14.4	517	2	15th do.	Malegaon	614	13.2	334	1	
	Detachment, 4th Regt. N. I.	Asirgarh	137.0	4.0	151	...	Detachment, 4th Regt. N. I.	Asirgarh	147	7.5	260	1	
	Total...		8,145.9	224.2	7,607	40	Total...		8,197	241.2	6,855	36	
	3rd Regiment N. L. I.	Ahmedabad	700.5	32.4	1,226	15	3rd Regiment N. L. I.	Ahmedabad	642	26.0	893	2	
	Detachment, 18th Regt. N. I.	Sadra	41.80	0.4	39	...	Detachment, 18th Regt. N. I.	Do.	637	15.5	396	2	
	28th Regiment N. L. I.	Rajkot	551.2	15.9	550	...	28th Regiment N. L. I.	Sadra	25	0.4	27	...	
	1st Co., Native Artillery	Do.	124.0	2.6	105	1	1st Co., Native Artillery	Do.	50	0.5	21	...	
	Squadron, 2nd Regt. N. L. C.	Do.	146.0	3.9	119	1	Squadron, 2nd Regt. N. L. C.	Rajkot	475	15.2	623	3	
	7th Regiment N. I.	Do.	247.0	6.8	284	4	7th Regiment N. I.	Do.	133	3.4	158	...	
	11th do.	Bhuj	671.0	16.1	314	4	11th do.	Do.	136	3.5	116	...	
	2nd Regiment N. L. C.	Deesa	288.9	9.4	243	1	2nd Regiment N. L. C.	Bhuj	324	10.0	407	2	
	18th do.	Do.	583.0	21.2	732	...	18th do.	Deesa	668	14.0	368	5	
	25th do.	Mhow	517.0	22.5	744	...	25th do.	Do.	257	10.9	282	4	
	16th do.	Do.	547.7	24.7	749	5	16th do.	Mhow	620	28.0	1,028	4	
								Do.	528	33.2	1,029	4	
								Do.	528	33.2	1,010	2	

NORTHERN															SIND DISTRICT.														
3rd Regiment N. L. C.	...	Neemuch	...	316.0	12.3	361	1	3rd Regiment N. L. C.	...	Neemuch	...	302	15.6	502	3														
24th Regiment N. I.	...	Do.	...	622.0	23.2	1,015	11	24th Regiment N. I.	...	Do.	...	646	41.0	1,346	6														
23rd do.	...	Nuseerabad	...	629.0	17.9	665	1	23rd do.	...	Nuseerabad	...	687	25.4	897	7														
Squadron, 3rd Regt. N. L. C.	...	Do.	...	122.6	3.7	152	...	Squadron, 3rd Regt. N. L. C.	...	Do.	...	127	1.7	162	...														
Detachment, 10th Regt. N. I.	...	Augur	...	223.3	15.4	392	...	Detachment, 10th Regt. N. I.	...	Augur	...	206	13.2	334	...														
22nd Regiment N. I.	...	Baroda	...	662.2	26.8	779	9	22nd Regiment N. I.	...	Baroda	...	623	32.7	1,130	5														
Detachment, 7th Regt. N. I.	...	Dwarka	...	80.7	2.8	115	...	Detachment, 7th Regt. N. I.	...	Dwarka	...	7	0.4	19	...														
10th Regiment N. I.	...	Mehidpur	...	361.0	24.3	858	25	10th Regiment N. I.	...	Do.	...	79	4.3	136	...														
Detachment, 28th Regt. N. I.	...	Barda Choki...	...	87.9	7.7	283	5	Detachment, 28th Regt. N. I.	...	Mehidpur	...	389	29.4	997	...														
Do. 16th and 25th	...	Indore	...	217.9	6.0	275	1	Do. 16th and 25th	...	Barda Choki...	...	79	10.0	355	2														
Regiments N. I.	...	Baroda	...	648.3	15.6	481	11	Regiments N. I.	...	Indore	...	194	3.7	190	2														
9th Regiment N. I.	...	Do.	...	158.1	6.6	233	...	9th Regiment N. I.	...	Indore	...	194	3.7	190	2														
Squadron, 1st Regt. N. L. C.	...	Total...	...	8,547.1	318.2	10,714	105	Squadron, 1st Regt. N. L. C.	...	Total...	...	8,362	376.2	12,426	53														
27th Regiment N. I.	...	Hyderabad	...	679.0	27.8	629	2	27th Regiment N. I.	...	Kurrachee	...	652	11.9	490	2														
29th do.	...	Kurrachee	...	627.8	20.8	538	4	29th do.	...	Hyderabad	...	636	21.5	799	3														
30th do.	...	Jacobabad	...	583.2	25.9	829	13	30th do.	...	Jacobabad	...	592	20.0	627	15														
1st Sind Horse ...	...	Do.	...	304.5	10.1	570	6	1st Sind Horse ...	...	Do.	...	343	13.3	671	7												
2nd do.	...	Do.	...	287.0	9.6	334	3	2nd do.	...	Do.	...	334	8.8	375	16														
3rd do.	...	Do.	...	356.0	10.7	703	4	3rd do.	...	Do.	...	291	9.4	497	12														
Total...			2,857.5	104.9	3,603	32	Total...			2,848	84.9.	3,459	55																
Grand Total...			22,819.0	772.7	25,475	213	Grand Total...			22,750	835.7	26,601	176																

APPENDIX III.

COMPARATIVE STATEMENT showing the Health of the Native Troops in the four Divisions of the Bombay Presidency.

1875.										1874.						
	Average Strength.	Admissions.	Deaths.	Average Daily Sick.	Ratio per Cent. of Admissions to Average Strength.	Ratio of Deaths per Cent.			Average Daily Sick per Cent. to Average Strength.	Average Admissions.	Deaths.	Average Daily Sick.	Ratio per Cent. of Admissions to Average Strength.	Ratio of Deaths per Cent.		Average Daily Sick per Cent. to Average Strength.
						In Hospital.		To ad- missions.								
						To Ad- missions.	To Strength.									
Presidency Division { Bombay Circle.	2,396.2	2,904	34	102.7	125.4	1.2	1.4	4.3	2,400	2,959	26	104.4	123.2	0.8	1.1	4.3
	892.3	647	2	22.7	72.5	0.3	0.2	2.5	943	902	6	29.0	95.6	0.6	0.6	3.0
Poona Division ...	8,145.9	7,607	40	224.2	90.3	0.5	0.4	2.7	8,197	6,855	36	241.2	83.6	0.5	0.4	2.9
Northern Division ...	8,547.1	10,714	105	318.2	125.3	0.9	1.2	3.7	8,362	12,426	53	376.2	148.6	0.4	0.6	4.4
Sind Division ...	2,837.5	3,603	32	104.9	126.9	0.8	1.1	3.6	2,848	3,459	55	84.9	121.4	1.5	1.9	2.9
Total...	2,281.9	25,475	213	772.7	111.6	0.8	0.9	3.3	22,750	26,601	176	835.7	116.9	0.6	0.7	3.6

